

**T.C.
ISTANBUL OKAN UNIVERSITY
INSTITUTE OF GRADUATE SCIENCES**

**THESIS FOR THE DEGREE OF
PhD OF BUSINESS ADMINISTRATION
IN ENGLISH BUSINESS PROGRAM**

Meryem KAYA

**THE IMPACT OF ORGANIZATIONAL INNOVATIVENESS
ON COMPETITIVE STRATEGIES: AN EMPIRICAL STUDY
ON LIFE SCIENCES SECTOR**

**ADVISOR
Prof. Dr. Uğur YOZGAT**

İSTANBUL, August 2022

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Presentation Date of Thesis: 17/08/2022

Submission Date of Thesis:

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İSTANBUL, August 2022

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CURRICULUM VITAE (ÖZGEÇMİŞ)	Hata! Yer işareti tanımlanmamış.

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to Prof. Dr. Uğur YOZGAT for guiding me through this journey. Your contribution to this thesis has been incredible for me.

It was valuable. More importantly, my dear teacher's belief in the value of this work has been a great source of motivation for me during these three years.

I would like also to thank the members of my dissertation committee; Prof. Dr. Mustafa Erdiñç TELATAR, Prof. Dr. Halit Targan ÜNAL, Doç. Dr. Murat BOLELLİ, Dr. Uğur Tarık ÖZKUT and Prof. Dr. İsmail Hakkı ERASLAN for their valuable contributions and supports.

A special thanks to my dearest mom Gülhatun and my dad Hayrettin, for instilling in me an appreciation for the value of education and for providing me with the educational foundations on which this work is built.

Also, I would like to express my special gratitude to my twin sister Melek, who has been an inseparable supporter since the first stage of my life, and who has always supported me in all matters and is a monument of self-sacrifice.

August, 2022

Meryem KAYA

DEDICATION

To the noble and unique Turkish Nation and Gazi Mustafa Kemal ATATÜRK



ÖZET

ÖRGÜTSEL YENİLİKÇİLİĞİN REKABET STRATEJİLERİ ÜZERİNE ETKİSİ: YAŞAM BİLİMLERİ SEKTÖRÜ ÜZERİNE BİR UYGULAMA

Günümüz dünya ekonomisi, yenilikçi sürecin kendine özgü olduğu, teknolojik gelişmelerin çok hızla yaşandığı bir süreci tecrübe etmektedir. Bu nedenle sürdürülebilir bir rekabet gücü elde etmek için organizasyonlarda inovatif yaklaşımlar mecburi bir koşul haline gelmiştir. İlgili literatür incelendiğinde, yenilikçilik ve örgütsel yenilikçilik alanındaki çalışmaların birçoğunun firma performansı üzerindeki etkisinin araştırılması üzerine olduğu görülmüştür. Örgütsel yenilikçilik ve rekabet stratejileri ilişkisini araştıran çalışmalar oldukça azdır. Ayrıca her iki ana değişkenin yaşam bilimleri sektöründe uygulamalı çalışmalarına henüz yer verilmemiştir. Bu çalışma, öncelikle literatürde görülen bu boşluğu doldurmak üzere tasarlanmış ve bu çalışmada örgütsel yenilikçilik değişkenine yönelik yeni bir ölçek geliştirilmiştir.

Yaşam bilimleri sektörü baz alınarak örgütsel yenilikçiliğin rekabet stratejileri üzerinde bir etkisinin var olup olmadığını ortaya çıkarmak bu çalışmanın temel amacını taşımaktadır. Bu çerçevede, nicel araştırma yaklaşımına bağlı olarak anket ve derinlemesine mülakat teknikleri ile veriler elde edilmiştir. Araştırmanın modeli ile ortaya çıkan hipotezler ve toplanan verilerin analizi için IBM SPSS Statistics-AMOS 23 programından yararlanılmıştır. Verilerin analizinde, tanımlayıcı istatistiksel yöntemler, korelasyon analizi, regresyon analizi, bağımsız örneklerde t testi ve tek yönlü varyans analizinden yararlanılmıştır. Yapılan tek yönlü varyans analizi sonucuna göre fark bulunan ifadeler için farklılığın nereden kaynaklandığını bulmak için Post Hoc testi kullanılmıştır. Araştırma sonucuna göre, örgütsel yenilikçiliğin rekabet stratejileri üzerinde etkisinin olduğu tespit edilmiştir.

Anahtar Kelimeler: Strateji, Rekabetçilik, Rekabet Stratejileri, Örgütsel Yenilikçilik, Yaşam Bilimleri Endüstrisi.

Tarih: 05.08.2022

ABSTRACT

THE IMPACT OF ORGANIZATIONAL INNOVATIVENESS ON COMPETITIVE STRATEGIES: AN EMPIRICAL STUDY ON LIFE SCIENCES SECTOR

Today's world economy is experiencing a process where innovative processes and technological developments are experienced very rapidly. For this reason, innovative approaches have become a mandatory condition in organizations in order to achieve a sustainable competitive power. In the relevant literature, most of the studies in the field of innovation and organizational innovation are focused on its effect on firm performance. There are very few studies investigating the relationship between organizational innovation and competitive strategies. In addition, applied studies of both main variables in the life sciences sector have not yet been included. This study was primarily designed to fill this gap seen in the literature, and a new scale for the organizational innovativeness variable was developed in this research.

The main purpose of this study is to reveal whether organizational innovativeness has an effect on competitive strategies based on the life sciences sector. In this framework, data were obtained by questionnaire and in-depth interview techniques depending on the quantitative research approach. IBM SPSS Statistics-AMOS 23 program was used for the analysis of the hypotheses that emerged with the research model and the collected data. In the analysis of the data, descriptive statistical methods, correlation analysis, regression analysis, independent samples t test and one-way analysis of variance were used. Post Hoc test was used to find out where the difference originates for the expressions that differ according to the results of the one-way analysis of variance. According to the results of the research, it has been determined that organizational innovativeness has an effect on competitive strategies.

Keywords: Strategy, Competitiveness, Competitive Strategies, Organizational Innovativeness, Life Sciences Industry.

Date: 05.08.2022

SYMBOLS

P	: Significance Level
Df	: Degree of Freedom
N	: The total number of observations or population size
n	: Sample size
Sd	: Standart deviation
β	: Beta (regression coefficient)
t	: Independent-Samples T Test
F	: Fisher's exact test
R^2	: R-squared
SS	: Sum of Square
α	: Cronbach Alpha
χ^2	: Chi-square

ABBREVIATIONS

AGFI	: Adjusted Goodness of Fit Index
AIC	: Akaike Information Criteria
BIC	: Bayes Information Criteria
BSTB	: Bilim, Sanayi ve Teknoloji Bakanlığı
CAIC	: Consistent Akaike information criterion
CFA	: Confirmatory Factor Analysis
CFI	: Comparative Fit Index
CIPF	: Customer-Innovation-Processes-Finance
CIS	: Community Innovation Survey
CUF	: Multinational Firms
DC	: Dynamic Capabilities
EFA	: Explanaoratory Factor Analysis
EFB	: European Federation of Biotechnology
ESE	: Effective Strategy Implementation
GFI	: Goodness of Fit Index
GII	: Global Innovation Index
GMP	: Good Manufacturing Practices
HRM	: Human Resource Management
ICD	: Innovation Capability Development
ICLAS	: International Council for Laboratory Animal Science
ITC	: International Test Commission
İKMİB	: Istanbul Chemicals and Products Exporters' Association
INSEAD	: Institut Européen d'Administration des Affaires
ITC	: Information Technology Capability
IVC	: Innovation Value Chain
KMO	: Kaiser Mayer Olkin
KPMG	: Pharmaceutical Industry Report
LO	: Learning Orientation
MEDİKÜM	: Medical Clustering Association
MEIS	: Medical Industry Sector (Biomedical Technologies)

MNC	: Multinational Companies
MO	: Market Orientation
NCC	: The National Competitiveness Council
NFI	: Normed Fit index
NNF	: Non-normed Fit Index
OECD	: Organisation for Economic Co-operation and Development
OI	: Organizational Innovativeness
OSB	: Organized Industrial Zone-Ankara
RBV	: Resource-Based View
RMR	: Root Mean Square Residual
RMSEA	: Root Mean Square Error of Approximation
RPA	: Technology and Robotic Process Automation
SEIS	: Turkish Health Industry Employers' Association
SHRM	: Strategic Human Resource Management
SLP	: Strategic Leadership Behavior
SRMR	: Standardized Root Mean Square Residual
TCD	: The Medical Device Directives
TDK	: Turkish Language Association
TOBB	: Union of Chambers and Commodity Exchanges of Türkiye
TRIPS	: Trade Related Intellectual Property Rights
UNIDO	: United Nations Industrial Development Organization
WEF	: World Economic Forum
WHO	: World Health Organization
WTO	: World Trade Organization

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CHAPTER I: INTRODUCTION

Change is continuous and the firm's strategy may need to change as a result of changes in the organization's environment, structure, technology, and people. Due to hyper competition, firms are forced to choose an effective strategic direction and develop an appropriate strategy to remain competitive now and in the future. Companies have to make a number of different strategic moves to create competitive advantage. The moves you make must be inaccessible to your opponents. You should always make a difference for your customers. You can create competitive advantage by developing a leadership strategy in factors such as cost, quality, innovation and customer experience.

The world economy is moving towards the sixth technological path, in which the constantly innovative process is peculiar in nowadays. Each technological era generates a specific set of innovations for sustainable economic growth. Technological developments play a major role in the changes and transformations observed in economic, political and socio-cultural life. Constant technological change poses threats even to established business models. Thus, innovative approaches that enable change in production processes become a very crucial condition in order to achieve a sustainable competitive power in economic systems that are subject to constant change. In addition, companies are constantly subjected to develop new products and processes or new technologies, that is, to innovate or transfer with the accelerating globalization process. For this reason, governments, business organizations, and decision makers are increasingly resorting to ways to promote innovation and growth overall world. The most important component of competitive power is undoubtedly to be able to develop new technologies, that is, to produce innovations that are difficult to imitate.

A fascinating question is what happens when a new and potentially superior technology emerges in a relatively mature industry. Tushman and Anderson point out that if the old firm is to survive in the new competitive environment, it must make a major change in management, possibly in strategy. However, this may not be enough. Because changing the structure and core competencies in an organization is much more difficult

than management and articulated strategies (Nelson, 1991). From all these perspectives; the emergence of new scientific disciplines seems inevitable. In this context, it is essential for business organizations to define the concepts of innovation and innovativeness within the scientific framework with clear boundaries from each other and to use them in this direction.

The more a firm can respond to innovation, the more innovative it is. In other words, it means that it has assimilated the innovation at the last good level. Innovation introduces new processes, products or ideas to the organization (Hult et al., 2004). Innovativeness measures the tendency of the organization to engage in innovative behaviors. Innovation has become a vital prerequisite for companies' competitive advantage (Van de Vrande et al., 2009).

The life sciences sector, on the other hand, is a general term for companies, businesses, and research institutions dedicated to improving the quality of life of living things. Branches of this industry include biotechnology, pharmaceuticals, cosmetics, clean environmental technologies, medical medical devices, neuroscience, and more. This sector is based on understanding the nature of diseases in terms of human health. It also benefits from environmental science as it helps to protect our environment.

One of the dominant economic sectors in the world is the life sciences sector. This sector, which has a very high efficiency advantage compared to other sectors, produces a wide range of products such as pharmaceuticals, medical technology, diagnostics and digital tools, as well as products for consumer health. Only by knowing the core competencies and their bundles that are the basis of strategy formulation can life sciences firms achieve superior performance with competitive advantage.

Accordingly, the life science companies were considered as an experimental study by examining the effect of organizational innovativeness on competitive strategies in this study. Considered in this context, this study analyzes the current innovation status of companies in the life sciences sector and evaluates their strategies to remain more competitive in a dynamic market.

This study consists of six different parts in total. The three parts of the research constitute the entire literature. The literature body includes all studies that address related or identical hypotheses or the background of research problems.

The concept of strategy is examined under three main headings in the second chapter of research. The topics of concept of strategy, strategic management process, and paradigms of strategy (resource based view (RBV) and dynamic capabilities) are discussed in detail.

In the continuation of the second part, the concept of competition and competitive strategies are examined under six main headings. The scope of competitiveness and its levels, models (Kim's Competitiveness Model, Ritchie and Crouch's Conceptual Competitiveness Model, Dwyer and Kim's Integrated Competitiveness Model, Enright and Newton Model, Anett Tozsér's Competition Model, Robert Reich's Knowledge-Based Approach, Cho's Nine Factor Model Approach, Paul Robin Krugman's Competitiveness Approach Dunning, Multinational Firms and Competitiveness, Rugman and D'Cruz Double Diamond Model, David Ricardo Disclosed Comparative Advantages Approach), and competitive strategies along with determinants of competitiveness in the life sciences industry and organizational innovativeness as a determinant of competitiveness in the life sciences industry are scrutinized.

The third chapter of this research explores the concept of innovation and organizational innovativeness. Therefore, seven consecutive subtopics are explained by considering the concept of innovation and its types and degrees, measuring of innovation, defining the innovativeness concept, determinants and antecedents of innovativeness, defining and conceptualization of organizational innovativeness under the headings of 5 dimensions (creativity, openness to change and innovation, future orientation, willingness for risk-taking, proactivity), and dimensionalizing of organizational innovativeness.

In the next section, firstly, the life sciences industry is determined by considering main categories (biotechnology industry, pharmaceutical industry, cosmetics industry, medical industry sector, and clean environment technologies). Then, the concept of life sciences industry and its competitiveness is analysed by taking into account positions of world and Turkey respectively.

The methodology of this research is represented by the fifth chapter of study. It explores eleven key steps of research methodology and provide a structure to research. Firstly, the research philosophy presents a general epistemology of the research topic. Afterwards, justification and significance of the research is discussed by referring statement of the problem. Also in this section monitors and criticizes the literature. For

this reason, a critical literature review is made by taking into account the research gap on the research topic. In this context, the clarity of the concepts of innovation and innovation was examined in this study. In other words, the research gap has been scanned in detail in order to eliminate possible confusions in the concept. In addition, the theoretical and empirical studies in the literature for the main purpose of the research are examined in detail. Thirdly, the aim of research is determined along with clearing research objectives and goals, and research questions. Research design is considered in next step. Then, development of the research model is created in fifth sub-title by taking into account variables of model. Sixthly, development of the research hypothesis is mentioned by regarding variables of organizational innovativeness (OI) and competitive strategies. Target population is determined by considering universe and sampling frame, and sample and sampling technique in the seventh step. Eighth sub-title explores data collection instruments and procedure by conducting to the questionnaire, which is the primary data collection technique. A unique and genuine scale development for the research is designed within this step by taking into account scale for organizational innovativeness. On the other hand, tenth step of sub-title gives research limitations of this study and data processing and analysis is cleared by resort to scale validity and reliability.

In the continuation of the fifth chapter presents summary of findings. Thus, this section reveals socio-demographical characteristics of the participants and general findings of the study, level of participation in competitive strategies and organizational innovativeness scales, the relationship between competitive strategies and organizational innovativeness, the effect of organizational innovativeness on competitive strategies, and difference analysis results by socio-demographical characteristics of the participants.

The last chapter explains conclusions and recommendations. Accordingly, exploratory results, and conclusions on the literature are discussed in this section; also recommendations are given by considering implementation and literature.

CHAPTER II: STRATEGY, COMPETITIVENESS AND COMPETITIVE STRATEGIES

The concept of strategy is believed to be an ancient Greek concept. It is derived from the ancient Greek word *strategos*, which was used to direct the general and/or the army. The Greek word for modern strategy would be the general's knowledge (*strategike episteme*) or the general's wisdom (*strategon sophia*). Until the nineteenth century, this concept was used mostly in the military field. However, it started to be used in the business world in the same century (Osinga, 1963; Burnes, 1996; Horwath, 2006; Alimpic, 2013; Sevinç, 2014).

Various definitions of the concept of strategy are made. Clausewitz defines strategy as using battles for the purpose of war. Similarly, Basil Liddell Hart also describes strategy as the art of distributing and implementing military means for the purposes of politics. Gregory Foster, on the other hand, saw the strategy as ultimately using effective force (Yükselen, 2018).

Strategy is an attempt to change the undesirable, unpleasant conditions of the context, or to create more favorable conditions for formulating more liberating strategies in the future. Strategy is basically a targeted activity to resolve a contradiction. The perception of contradiction is the result of the dialectical interaction of agency with structure. In this sense, the strategy designed as a process from thought to praxis is a set of actions dedicated to turning a potential into reality (Yükselen, 2018).

In the instrumentalist interpretation of modern post-Clausewitzian strategy, strategy is the bridge linking military power to political goals. Thus, strategy provides the conceptual link between action and effect, and means and goal (Osinga, 1963).

Strategy, in its broadest sense, is the art or science of shaping tools to support ends in any area of conflict. Strategy, in this respect, is a term associated with military force and is expressed as the art or science of using military force to achieve certain policy objectives (Bull, 1968).

Strategic thinking today is not just about the efficient conduct of war. Napoleon, Hitler and Clausewitz, saw strategy as an aspect of war. Secondly, it is no longer possible to associate strategic thinking only with military protection. This concept has gained a serious place in the business world. A third feature of strategic thinking today is its abstract and speculative character. Strategy has always had to deal with the future and has remained speculative. In this context, he was always involved in making plans. The fourth characteristic of strategic thinking today is its complexity and high technical quality (Bull, 1968).

Looking at the common features in the definitions, it is possible to count tools and aims as the main elements of the concept of strategy. Moreover, aligning these tools and objectives requires a process. However, Bernard Brodie saw strategy as applied science and claimed that it should be studied scientifically. Stressing the operational and utilitarian nature of strategy, Brodie said strategic theory is the theory of action. At the heart of this approach lies the instrumental nature of the strategy aimed at solving political problems (Yükselen, 2018).

Mintzberg and Miles and Snow (1978) argued that researchers should see strategy as a model for the important decisions and actions of the organization (Alimpic, 2013).

The Oxford Dictionaries Online definition of strategy is an action plan designed to achieve a long-term or overall goal; and Mintzberg (1987) has interpreted a consciously designed action plan as a guide. However, the strategy is not a detailed action plan; it is an action plan reduced to the most basic choices and decisions. It is the minimum with maximum effect. This leads to this definition strategist the smallest (basic) options to guide the other options in the most appropriate way (Steen, 2013).

Chandler's definition of strategy is interpreted as determining an enterprise's key long-term goals, objectives and plans of action and allocating the necessary resources to achieve them. These definitions are that the strategy is (a) clear, (b) deliberately and purposefully developed, and (c) preceded by specific decisions to which it is implemented. In other words, the strategist may formulate a strategy by a conscious process, or perhaps unintentionally build a strategy gradually before making certain decisions. This definition makes the concept of strategy useful to the researcher. In common terminology, strategy is a plan (Mintzberg, 1978).

Mintzberg and Quin (1996) expressed strategy as a plan that consistently brings together the goals, policies and actions of the organization. The strategy includes organizations to use their resources and capabilities in the most effective way, taking into account environmental changes (Eraslan, 2014).

Higgins and Vincze (1989) stated that strategy is an important organizational plan for achieving a great organizational goal. Obviously, these different definitions are not mutually exclusive and therefore complement each other and promote eclecticism (Alimpic, 2013).

Murray and Grimsley defined strategy as a process that involves constant adaptation to changing conditions and conditions in a world dominated by chance and uncertainty. Here, he highlighted the adaptive and processional features of the strategy. André Beufre, on the other hand, defined strategy as the dialectic of two forces using force to solve the problem, or exactly the dialectic of two opposing wills and thus emphasized the dialectical nature of the strategy both within itself and between two subjects (Yükselen, 2018).

Strategy acts as a bridge between today's realities and the targeted future. That is, strategy at all levels is a disciplined calculation of comprehensive objectives, concepts and resources within acceptable risk. The strategy guides the proper evaluation of resources. The strategy integrates the tools of national power to achieve national and/or multinational goals. Strategy is defined as the art and science of developing and using this synchronization (Yarger, 2006).

It is possible to find many different definitions in the literature of the contemporary definition of the concept of strategy. For example, Henry Mintzberg (1994) stated in his book *The Rise and Fall of Strategic Planning* that he uses the term strategy in many different ways. There are many reasons for the variety of definitions. The most important of these reasons is that the strategic planning that emerged in the 1920s changed in order to adapt to changing conditions and strengthen its weaknesses (Eraslan, 2014).

2.1. STRATEGY

Charles Darwin (1809-1882) brought a new perspective to science with his Theory of Evolution, which he put forward in the 19th century. By publishing his book, *The Origin of Species* in 1859. He explained the two most important features of science. His

explanation of the theory of evolution stated that survival of the fittest and change is from simple to complex (Henry, 2008).

There are stages of strategy development as well as general stages of human development. So this development and progress is closely related to temporal and spatial diversity. However, the development of the strategy is evaluated according to various formative factors rather than the timeline (Grattan, 2009).

Humanity has somehow fought for life in nature since its existence, and this war of survival has been realized as a requirement of a natural strategy. However, with the development of humanity, strategy has emerged as one of the most important elements of the concept of war. In this context, the concept of strategy was first used in the military field and its foundations in other fields were developed by taking shape on the principles of use in the military field (Sevinç, 2014).

There seems to be no particular point in the history when the first people discovered the strategy. However, there are indications that partial use of the strategy or a prototype emerged for the following reasons: the beginning of settlement; creation of surplus value; the emergence of kings and politics, the invention of writing, and the use of war as a political measure. Early attempts can be viewed as tactical, not strategic. Early attempts can be viewed as tactical, not strategic. However, strategy and tactics are not the same. The distinction between the two is up for debate (Grattan, 2009).

The need for people to defeat their enemies gave birth to the concept of strategy. So much so that this concept caused the world map to change. Historically, strategy has guided many processes. The rise or fall of many nations or peoples has been through the use of strategy. Unique combination of science and craft made strategy formulation universal (Horwath, 2006).

The concept of strategy, which emerged in the military field and focused on martial arts research, has expanded over time and has penetrated into other disciplines, especially in the examination of decisions with wider vital effects (Yükselen, 2018).

The military origins of the strategy have a decisive influence on the adoption and adaptation of the concept in the business arena. Dating back to Chinese poetry and narratives in the 400-200 BC period, the strategy has been an important determinant in shaping the political, sociological and commercial landscape of the world (Horwath, 2006).

Considering both the military war literature and its applications and economics, it is seen that military wars and economic competition are won by strategies. In this context, strategy is a concept as old as human history; It has been used effectively for centuries, especially in the art of war and / or its management (Eraslan, 2014).

The first treatises discussing the strategy belong to the Chinese around 400 - 200 BC. Sun Tzu's *The Art of War* was written in 400 BC. Even after centuries it was critically acclaimed as the best work on military strategy (Horwath, 2006).

As Clausewitz emphasized, every war has its own uncertainty. Also, in every war there are complexities arising from different wills and minds. The strategic outcome of a war

The claim that it is determined by the facts on the battlefield has laid the groundwork for the concept of strategy to become widespread (Yükselen, 2018).

The development process of the scientific management approach started in the 1930s. Likewise, the historical development of the concept of strategy has shown parallelism with these years. In fact, the prominence of strategy as one of the most critical concepts in the business-economics literature coincides with after the First World War. After this stage, the concept of strategy and its implementation has moved away from being a military term and approach. Strategy has begun to be seen as a tool that aims to direct the management processes of organizations. Henry Mintzberg, one of the most influential researchers, argued with examples that business strategies do not always occur in a rational and planned way, but are shaped in response to threats and opportunities in changing conditions (Shimizu et al., 2006).

According to neoclassical theory, the world is too complex for a firm to understand its own world. In fact, this is one of the basic propositions of the theory of evolution. A firm's strategy and associated structure have certain characteristics. For example, trust in management will increase the chances of developing the skills needed to be successful. However, there is much that a firm (or management) must take risks knowing that it does not know how it will turn out (Nelson, 1991).

Thus, institutional diversity is exactly what is expected in evolutionary theory. Companies have to choose different strategies. Thus, companies will have different structures and different basic capabilities, including R&D. Firms will inevitably follow different paths, some will be profitable, and some will not (Nelson, 1991).

By 1962; strategy was defined as determining long-term goals and objectives in the enterprise and preparing the appropriate activity program by allocating the resources needed to achieve these goals.

By 1965; strategies are defined as a set of goals and policies.

By 1978; strategy is defined as a set of decisions and activities related to products and markets that can exist without a formal plan.

By 1979; are considered as activities that will harmonize the internal resources and capabilities of the enterprise with the opportunities and threats of the external environment.

By the year 1980; The concept of strategy is defined as the sequence of making decisions and activities that will provide superiority to its competitors, based on market opportunities, after determining the level of competition in the market and its future.

In the 2000's; It is defined as the skill of developing a method in order to reach a determined goal or goal, or the sequence of reaching a goal by producing fast, different, creative solutions.

The development of the strategy used by today's economy and management discipline as a scientific sub-discipline owes its importance and experience in the military field. However, business-management science, which developed with the needs and problems of the business organizations growing especially with the industrial revolution and the sectors created by them, applied and developed the concept of strategy, borrowed from the military literature, in its field after this period (Eraslan, 2014).

It has been settled and used as the referral, which means the referral and administration of the army in Turkish language. The elements that enable the strategy used in today's economy and business discipline to develop as a scientific sub-discipline are the importance and accumulation in the military field. Especially the business-management science that developed with the needs and problems of the business structures growing with the industrial revolution and the sectors created by them, also applied and developed the concept of strategy borrowed from military literature after this period (Sevinç, 2014).

Changes in society, the environment, wars, and the use of technology were factors that triggered strategy development. This process is fully compatible with Darwinian evolution. Henderson is one of those who use this metaphor. The development of writing added another dimension to strategy development. For example, this development

enabled the writing of data suitable for analysis. Literacy was necessary for formalized strategy production. All these developments have encouraged leaders and decision-makers to base their decisions on facts and predict the future (Grattan, 2009).

When strategy is considered as a concept, the first view that is examined is the imposition of human will on the environment. This was the biggest problem of the first man. Because the weather, the food animals and their neighbors were all beyond his control (Grattan, 2009).

Many concepts that form the basis of the development of today's concept of strategy were born in the first half of the twentieth century. In the early 1960s, the first structure of strategic plans was formed. In the 1980s, attention shifted from strategic plan to strategic management. Parallel to this, strategy implementation has gained importance. In the 1970s and 1980s, researchers revealed that strategy development cannot be a simple regulatory mechanism, there may be different strategy processes in different organizations, and there may be differences between desired and achieved strategies (Sevinç, 2014).

The concept of strategy in firm theory includes the set of commitments that define and rationalize the firm's goals. First, the commitments embodied in a strategy are the calculus as well as the belief of senior management and company tradition. Second, firm strategies rarely specify the details of firm actions. But it often dictates the widest lines. Third, and crucially, these commitments are actually optimal. Strategy and structure reveal and shape organizational capabilities. But every organization has jobs and industries where it can do well. In other words, every organization has its own life (Nelson, 1991).

Strategy is a method of creating strategic effects in accordance with policy and objectives by implementing ways, means and objectives. In this respect, the strategy should be evaluated at all levels and should have an internal logic developed in this direction (Yarger, 2006).

A choice is made for a future state or condition. This shows that strategy is basically a reflection of elections. Of course, it assumes that the strategic environment can be analyzed and evaluated, although the future cannot be fully predicted. For example, opportunities, threats, problems, sudden changes, contingencies, problems, trends and preferences can be analyzed. In this way, how the government or firm will be affected by

what it chooses to do can be shaped. Thus, strategy seeks to influence and shape the future environment, not to react to choice (Yarger, 2006).

2.2. STRATEGIC MANAGEMENT PROCESS

The field of strategic management emerged from the social and administrative sciences in the 1970s and early 1980s. The factor that makes it understanding of the principles that will ensure the continuity of institutions. Both practitioners and students have turned to analytics-based heuristics that will deliver superior performance. The main purpose of this field is to explain and predict the performance of organizations and especially firms, as distinct from the performance of markets, individuals and economies (Mohoney and McGahan, 2007).

According to Johnson and Scholes (2002), strategic management enables strategic decision making, alignment of performance and business results. It determines the strategic direction of the organization and the business. Strategy is a continuous activity that enables making decisions on a daily basis to cope with the changing conditions and challenges of the business environment (Alimpic, 2013).

Robbins and Coulter (2016) strategic management is the activities that managers do to improve the strategies of the organization. It includes all the basic management functions such as planning, organising, directing and controlling. Strategies of an organization; They are the plans for how the firm will compete successfully and attract and satisfy its customers to achieve its goals and do everything it does about the business (Robbins and Coulter, 2016).

The most important element for the concept of strategic management is to gain and maintain competitive advantage. The prominent concept here is the dynamic capabilities approach, which tries to analyze the sources of asset creation and acquisition of firms (Teece et al., 1997).

The main framework in strategic management is industry structural analysis (Porter, 1980). The key finding here is the idea that context and structure are integrally and systematically important to both firm-level behavior and organizational performance (McGahan, 2004).

According to Bryson (1998), strategic management is a management technique that reveals what an organization does, its reason for being and the goals it wants to achieve

in the future. George Steiner (1979) in his work titled Strategic Planning; he speaks of entering as a response to a competitor's current or anticipated actions. Barry (1986), another researcher working in the field of management science, defines strategic management as the analysis of an organization's future goals and the process that shows how to achieve this goal (Eraslan, 2014).

Strategic management first analyzes the situation and environment facing the firm. It formulates a strategy based on this analysis and is concerned with implementing that strategy. That is, if a strategy allows an organization to match its resources and capabilities with the needs of the external environment to gain competitive advantage, the process of learning about strategy is strategic management. In this direction, companies determine their competitive advantage targets. A very important point here is that these elements are interdependent. That is, an organization formulating a strategy should also consider how to implement that strategy (Henry, 2008).

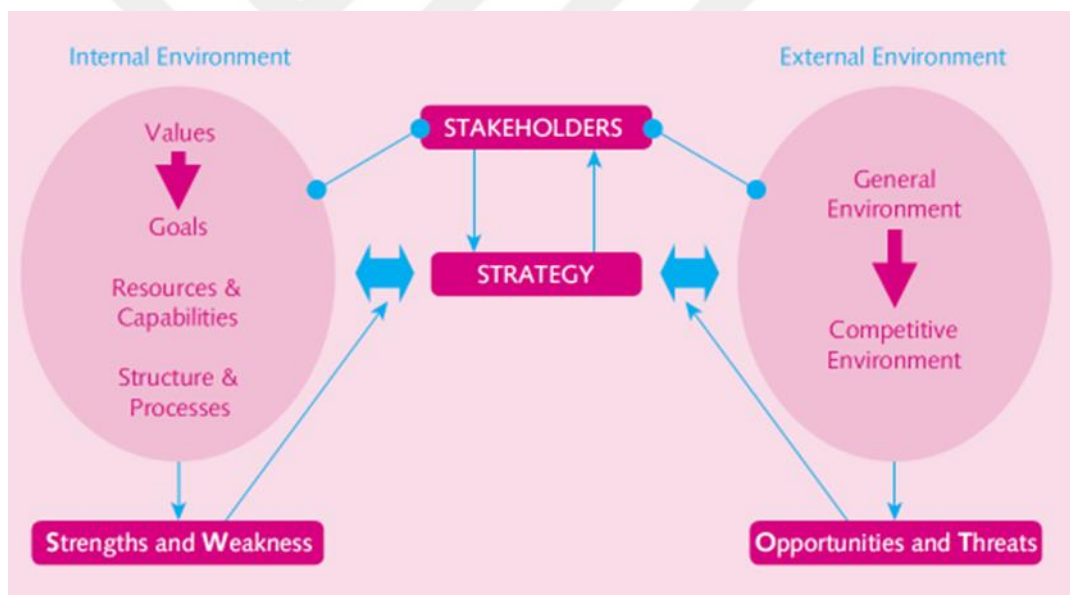


Figure 2.1. A Framework of Strategic Management (Henry, 2008).

According to Snow (2004), the predominant objective of strategic management is to promote the survival and growth of organisations with the central focus to have an alignment between external environmental forces and internal resources and capabilities. The term alignment or strategic fit are used interchangeably in the literature. Thus the key objective of strategic management is creating fit among a company's activities (Porter 1996).

We can consider the strategic management process under three headings. Strategy analysis, strategy formulation and strategy implementation (Alimpic, 2013).

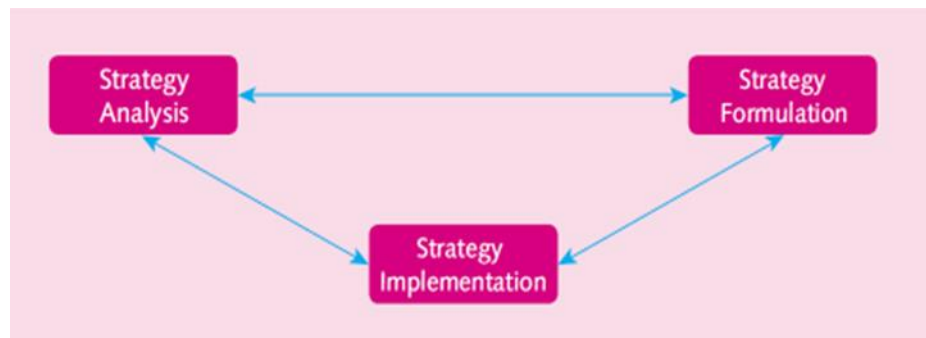


Figure 2.2. A Strategic Management Process (Henry, 2008).

2.2.1. Strategy Analysis

A change in planning requires a management system, new orientation and work paths. In a broad sense, the environment is infinite and includes everything outside the organization. Organizational environment is defined as all elements that exist outside the boundaries of the organization and have the potential to affect all or a part of the organization. Organizations must continually adapt to environmental changes in and out of action (Voiculet et al., 2010). However, the analysis here considers only those aspects of the environment that the organization is sensitive to and must respond to in order to survive (Daft et al., 2008).

The environment of the organization includes stakeholders, represented owners, managers, customers, suppliers, etc., who are directly or indirectly affected by the work of the organization and have control over it. It includes a range of 'actors' and interest groups, such as Under these conditions, it is necessary to ensure harmony between the external environment of the organization (economic, political, technological, legal, etc.) and its internal environment (resources, structure, organizational culture, leadership style, way of using power) (Voiculet et al., 2010). With strategic analysis, the strategic position of a company in its environment can be defined. This is an important element of strategic management and analyzes the situation (Alimpic, 2013). Strategy analysis by the organization is a useful starting point. Thus, an analysis of the general environment and competitive environment is made. Strategy analysis also deals with the internal environment of the organization. This indicates how well the organization is positioned to take advantage of the opportunities in its external environment (Henry, 2008).

The environment comprises several sectors or subdivisions that contain similar elements. Ten sectors can be analyzed for each organization: industry, raw materials, human resources, financial resources, market, technology, economic conditions, government, sociocultural, and international (Daft, et al., 2008)

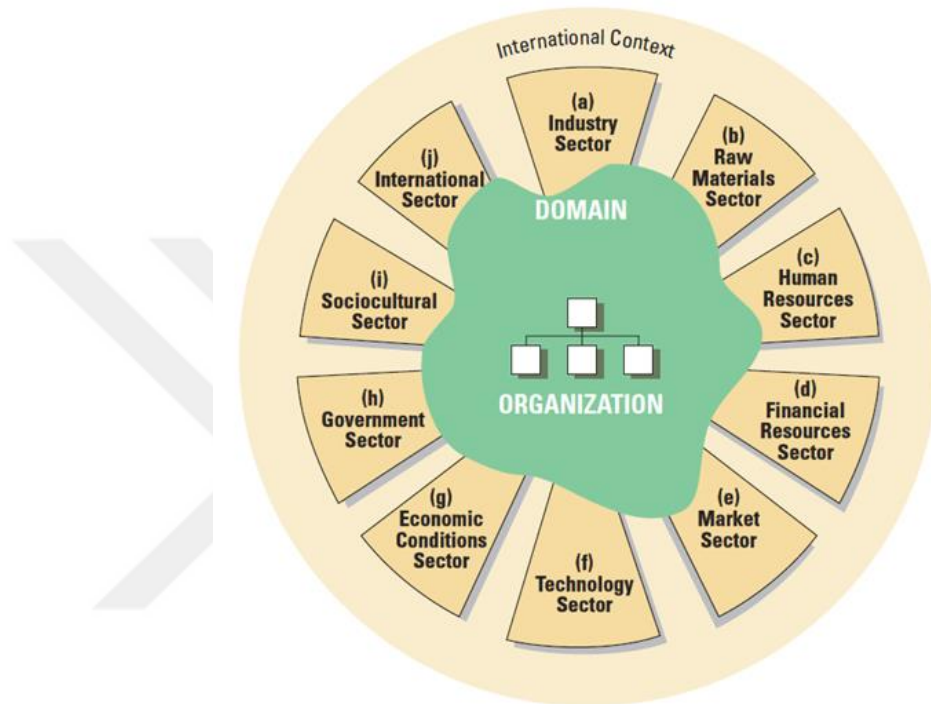


Figure 2.3. The External Environment Domain (Daft et al., 2008).

2.2.2. Strategy Formulation (Strategic Choice)

Developing established strategic capabilities paves the way for effective strategies. Here, organizations should compare their strategic capabilities with those of key competitors. This analysis is an important prerequisite for successful strategy formulation and implementation (Parnell, 2011).

Strategy formulation is both an art and a science.

Strategy, like politics, is the art of the possible. Because few people understand what is possible (Yarger, 2006). Strategy formulation needs analysis and identification of options leading to cognition decision (Grattan, 2009).

In most organizations, strategy formulation revolves around the interaction of three fundamental forces: (a) a constantly but chaotically changing environment, and (b) the

environment it serves. and (c) leadership whose role is to mediate between these two forces (Mintzberg, 1978).

Strategy formulation enables the organization to adapt to environmental change to maintain its stability. In this case, the strategy consists of consistent behaviors in which the organization determines its place in its environment for a certain period of time. Strategic change can be seen as an organization's response to environmental change that is constrained and accelerated by bureaucracy (Mintzberg, 1978).

Organizational competencies and resources need to be evaluated for strategy formulation (Andrews, 1971). Those who are different or superior to their competitors will gain competitive advantage if they can make good use of environmental opportunities (Andrews, 1971; Thompson and Strickland, 1990). In fact, this issue has long been at the center of the strategic management field. In other words, there is a widespread notion that companies are fundamentally heterogeneous in terms of resources and internal capabilities (Peteraf, 1993).

Strategy formulation is not just about setting broad goals and competitive advantage. This will complete the objectives. It is completed by identifying the necessary activities along the value chain (Porter 1985; Gavetti and Rivkin, 2007).

2.2.3. Strategy Implementation

The academic management literature on strategy mainly focuses on the process in which the strategy is implemented. In the applied process, shaping is done by paying special attention to the unplanned and non-analytical aspects within the organization (Yarger, 2006).

The next element of strategic management is the implementation of the determined strategy. Choosing the most appropriate strategy is the main criterion for strategy implementation (Alimpic, 2013).

No matter how well a strategy is formulated, it cannot achieve its purpose if its transmission and implementation within the organization is not strong. Expecting the strongest effect from the determined strategy depends on the flexibility of that strategy in the organizational structure and design. Strategies should first be communicated to stakeholders both within and outside the institution. Then it should be ensured that all stakeholders understand this strategy correctly and this should be coordinated. Every organization has a purpose. The organization must be aware of what it is trying to achieve,

whether in the private or public sector. For this reason, the organization should determine a direction in line with the agreed goals (Henry, 2008).

A firm resource that is necessary in the implementation of almost all strategies is managerial skills (Hambrick, 1987). Finally, the strategist should be in the best position to design all other supporting activities and processes needed to empower the strategist (Hambirck and Fredrickson, 2001).

2.3. RESOURCE-BASED VIEW (RBV)

The strategy mediates the achievement of policy-based objectives and is comprehensive in nature. Strategy guides the judicious application of power and positively enhances the complex and volatile strategic environment. The strategy basically provides guidance on how best to reach the target location by making more accurate choices. Thus, the strategist confronts allies and other actors. It deals with resource and organization issues. Even when addressing these issues, some simple factors will be unpredictable. Rational choice, actors, allies, and competitors are parts of the strategic paradigm (Yarger, 2006).

The paradigm common in the concept of strategy in the 1980s is the competitive powers approach (Porter, 1980). This prescriptive school approach is used at the level of strategic business units, not the entire organization of Johnson and Scholes (2002). However, this approach can no longer respond to today's dynamic and changing conditions. Because this model was based on a relatively stable economic situation and predictable developments (Alimpic, 2013).

In the world, which has turned into a global village, technological changes and developments are happening very quickly. In addition, today's economic order is interconnected. This layout is driven by a unique logic of networks (Kelly, 1998). Therefore, it is necessary to consider strategy paradigms such as resource-based view and dynamic capabilities today. In order to develop a strategy suitable for these paradigms, effective and efficient performance management should be applied.

The resource-based perspective is the introverted and self-focused perspective of the firm. Its origin is in the search for competitive advantage. A resource-based view that emphasizes core competencies and intangible. In other words, these are generally valuable resources or competencies that constitute intangible assets such as reputation,

skills, image that companies have. These resources are strengths that guide the choice of strategy and should be fed continuously (Porter, 1991).

RBV suggests that a firm's strategies are shaped by its own unique or unique resources and capabilities (internal environment) (Haarla, 2003). The resource-based view focuses on firm heterogeneity and is based on early economic models of monopolistic competition (Chamberlin, 1933; Fahy, 2000). The view is based on the resource package owned by a company (Wernerfelt, 1984). The view is about developing skills and how these capabilities affect the organization's competitive position and performance (Eraslan, 2008).

The resource-based view proposed as an alternative strategy theory has a circular nature. What is truly unique for a firm is the entire resource package for that firm. Therefore, the success of the firm is not the product market conditions, but the presence of factor market conditions. So the role of internal resources is an important insight for economic modelers. What the resource-based view promises are the conditions that enable companies to obtain favorable competitive opportunities and maintain this competitive advantage (Porter, 1991).

Resources are valuable to the company and conditions must be determined over time. For example, characteristics such as product use advantage, difficulty in substitution, and imitation are valuable resources. Therefore, the resource-based view is not an alternative strategy theory. This view, which is one of the cross-sectional determinants of competitive advantage, is intertwined with the concept of the firm (Porter, 1991).

Firm resources include all assets, capabilities, organizational processes, firm characteristics, information, and this information controlled by the firm that enables the firm to design and implement strategies that increase efficiency and effectiveness (Barney, 1991). It is closely related to internal resources and human resources such as physical, organizational, technological and abstract (Almor and Hashai, 2004; Steinle and Schiele, 2008). Company Competencies can be created with the correct use of resources. As new knowledge and skills are developed, companies become more effective and efficient (Zyl, 2006).

The resource-based view comes to the fore for environments where a few limited resources can manage the results and the strategy to be implemented should take place in the short to medium term. In other words, resource-based opinion is critical in situations

where change is very rapid and the strategic variables and combinations related to these variables are limited (Porter, 1991).

The idea of looking at firms as a broader set of resources goes back to the seminal work of Penrose (1959) (Wernerfelt, 1984). The firm's RBV as a strategy paradigm has emerged as a popular competitive advantage theory in recent years (Alimpic, 2013).

In the traditional concept of strategy (Andrews, 1971), the resource position (strengths and weaknesses) of the firm was discussed. It is important that organizations try to identify what they are (Wernerfelt, 1984).

According to Barney (1986), it should be analyzed on the basis of both product and source. In other words, firms can earn higher returns when they have superior knowledge. The managerial practice that emerges here is that firms must focus on unique skills and resources. Barney (1991) stated that two assumptions are fundamental for RBV: (1) resources are heterogeneously distributed among firms, and (2) these productive resources cannot be transferred from firm to firm without cost (ie sticky resources) (Dierickx and Cool, 1989).

From a resource-based perspective, firms are heterogeneous in resources/skills/grants. Also, resource donations are sticky. That is, in the short run, firms are to some extent stuck with what they have. There are three reasons for this stickiness: First; business development is extremely complex and firms lack the institutional capacity to develop new qualifications (Dierickx and Cool, 1989). Second, some assets such as tacit knowledge (Teece, 1976, 1980) and reputation cannot be easily sold. Finally, even if an asset can be purchased, firms earn little return by doing so (Teece et al., 1997).

In this direction, Barney (1991) put forward two main arguments. First, resources that are both scarce and valuable can provide a competitive advantage. Second, such resources cannot be reproduced, substituted and transferred simultaneously (Dierickx and Cool, 1989). Therefore, rarity and value, inimitability, non-substitutability and non-transferability are necessary but not sufficient conditions for the sustainability of an existing competitive advantage (Priem and Butler, 2001).

According to Wernerfelt (1984), resources are assets (tangible or intangible) that are semi-permanently attached to the firm. Firm resources are what enable the firm to design and implement strategies that increase efficiency and effectiveness (Daft, 1983).

It focuses on Wernerfelt and Montgomery's (1988) strategies for using existing firm-specific assets. In addition to these features, the key strategy move is where and how the company competes (Alimpic, 2013). According to the resource-based view, the essence of normative guidance is to take advantage of the unique profit opportunities hidden in available resource donations (Winter, 1995).

• **Dynamic Capabilities**

To remain competitive, companies must continually develop new capabilities. Companies can respond to changing needs with processes/skills/routines that are unique and difficult to imitate by competitors. Dynamic capabilities are a structure that creates new competitive advantages that meet changing market needs in a timely manner. Dynamic capabilities (DC) emphasize two issues: First, DCs are the dynamic aspect of competencies, which refers to their capacity to innovate. The second is the capabilities aspect, which refers to the ability to create change through the process of integrating, building, and restructuring competencies (Zaidi and Othman, 2011).

Capabilities are understood as the efficiency in which a firm uses a certain set of resources (inputs) to achieve certain goals (outputs). A firm's resources are assets it owns that can be outsourced and transferred (Grant, 1991; Amit and Schoemaker, 1997; Dutta et al., 2005).

Dynamic capabilities are the organizational and strategic routines that managers use to build their resource base – acquiring and disposing of resources, assembling and recombining them – for new value creation strategies (Eisenhardt and Martin, 2000).

Dynamic capabilities are processes embedded in firms and have an organizational and empirical perspective (Barney, 1991; Peteraf, 1993; cited by Eisenhardt and Martin, 2000), the dynamic capabilities view is crucial not only as a guide for the firm, but also as the basis of firm theory in economics (Nelson, 1991).

Dynamic capabilities are a potentially integrative approach to understanding new sources of competitive advantage (Teece et al., 1997). DC can open new strategic alternatives or avenues for the firm by changing the resource base of the organization (Helfat, 1997). Therefore, DC reflects an organization's ability to gain new and innovative competitive advantage given its path dependencies and market positions (Alimpic, 2013).

Dynamic capabilities come into play when: time to market is critical, technological change is rapid, future competition and the nature of markets are unpredictable. These

complex processes require innovative responses. DC provides a coherent framework that can both integrate existing conceptual and empirical knowledge and facilitate prescription (Teece et al., 1997).

Dynamic capabilities consist of specific processes such as product development, strategic decision making, and alliances. They are neither ambiguous nor tautological (Eisenhardt and Martin, 2000).

2.4. COMPETITIVENESS

Georgy Frantsevich Gause published the results of an experiment, conducted in 1934 from Moscow University, known as the father of mathematical biology. He put two very small animals of the same breed (protozoans) in a bottle with enough food. When the animals he put in the bottle were of different species, they could live together. However, when he bottled animals of the same species, they couldn't survive. The name of this observation is Gause's Competitive Exclusion Principle. Accordingly, the two species that sustain their lives cannot coexist (Henderson, 1989).

Same-sex species generally have a lot of similarity in structure and habits and constitution. So if the same species compete with each other, the struggle between them will generally be more intense. However, this is not so severe among different species (Hardin, 1960).

The competition essentially started with life itself. Gause's experiment shows that competition existed long before strategy. The first single-celled organisms needed certain resources to survive. When these resources were sufficient, the number increased from one generation to the next, so that life developed and became complex. When any pair of species competed for an essential resource, sooner or later one took the place of the other. When each species gained a stable power by gaining an advantage in its territory, only one of them survived. Thus, when any pair of species compete for an essential resource, sooner or later one will replace the other (Henderson, 1989).

It is possible to see the concept of competition in all areas of life, from the existence of humanity to the present. Generally speaking, competition refers to a race in every point of life, in order to reach a determined goal, in which a person is involved with a sense of ambition and personal satisfaction. Competition is the race to gain an advantage over its

rivals. In order for such a competition to exist, more than one person, group, institution or organization must face each other (Firat, 2019).

The concept of competition will always be up-to-date in our world, which is experiencing a very rapid change and transformation with the digitalization process, and every institution or organization will try to produce a strategy in this sense.

Competitors directly influence each other's strategic choices. In fact, competitor identification begins with this simple idea (Besanko et al., 2013).

The basic element that separates the strategic approach from the plan is the concept of competitor. What separates the concepts of strategic approach and strategic planning from planning is that they contain the concept of competitor. In other words, an unrivaled strategic approach is only a plan (Firat, 2019).

According to the definition of Turkish Language Association (TDK), competitor; In any job, in a race, it is defined as a person who tries to beat each other, tries to achieve the same thing (TDK, 2018).

Charles Darwin's *On the Origin of Species*, published in 1859, highlights a fruitful perspective and starting point for developing business strategy. Accordingly, humans may be at the top of the ecological chain. But humanity is still a member of the ecological community. This is why Darwin is a better guide to job competition than economists (Henderson, 1989).

Concept of competitiveness into the business literature coincides with the second half of the 20th century. Firms started to attach importance to planning especially in the 1950s and 60s, and competitiveness was among the priority issues in this context. In the 1970s, uncertainties started to increase in the markets and companies tried to develop strategies to get ahead of their competitors. With the environmental developments that took place in these years, the concept of Competition Strategies has entered the business literature (Eraslan, 2014).

The concept of competitiveness has been first seen in the field of agriculture in a historical process, and this concept has become known in the industrial sector with the industrial revolution (Erdem and Köseoğlu, 2014).

The term competitiveness is a term that is used in a wide variety of ways, both in political society and in academic research. The ability to achieve certain general results such as a high standard of living, economic growth, the ability to achieve certain

economic results such as job creation, export or foreign direct investment equals competitiveness (Delgado et al., 2012).

Competitiveness has different meanings for different people (Saxena and Lozac'h, 2010). Today, many different opinions and definitions are made about the concept of competitiveness. As Porter stated in his interview with Snowden and Stonehouse (2006).

It is seen that there are misinterpretations about the definition of competitiveness both in academic circles and among the executives in the media, politics and private sector. For example, Ambastha and Momaya (2004) state that the definition of competitiveness and the competitiveness assessment criterion vary depending on time and content (Eraslan, 2014).

Today, industries, firms, manufacturers, non-governmental organizations, governments, employees and consumers are exposed to the pressure of fierce global competition caused by globalization. Therefore, in today's dynamic business environment where change and transformation are experienced very rapidly, it is getting more and more difficult to achieve superior performance compared to competitors (Haarla, 2003; Zyl, 2006). With the rapid technological transformation and the disappearance of world borders, businesses started to operate not only in national but also in international markets, which brought a great competition environment (Hancıoğlu and Yeşilaydın, 2016).

Although the concept of competitiveness is frequently mentioned, it has not been explained with a clear definition yet. Competitiveness has different meanings for different people (Saxena and Lozac'h, 2010). Competition is a concept that has many technological, economic, social, legal and political dimensions and can be defined as focused on different purposes and elements. Competition differs in terms of its dimensions as well as its definitions. In this context, the main purpose of the concept of competition is to gain power, superiority, gain and make a difference. Therefore, the most intense area of interest of competition is the economic areas. The main difficulty in defining and measuring the concept of competitiveness it is due to the fact that it is expressed on the basis of enterprises (Çakıroğlu, 2010; Herdem, 2014).

Competition is measured by the value of goods and services produced per unit of a country's human, capital and natural resources. Competition improves the standard of

living. Real competition is measured by productivity and begins with an assessment of a nation's source of wealth (Porter and Ketels, 2003).

Competitiveness is related to the long-term profit performance of the firm. This suggests that when assessing a company's competitiveness, it should include quantitative measures of cost, price and profitability, and qualitative indicators of non-price factors, especially quality (Buckley et al., 2010).

Competitiveness is the ability to compete in markets for goods or services (Balkyte and Tvaronaviciene, 2011). According to an economist, competitiveness is related to how well a country performs in terms of living standards and national productivity compared to other countries (Saxena and Lozac'h, 2010).

In general, competition confronts human beings at every point of life. Competition refers to a race in which a person is involved with a sense of ambition and personal satisfaction in order to reach a determined goal. Competition is a race to gain an advantage over its rivals. In order for such a competition to exist, more than one person, group, institution or organization must face each other. In short, competitiveness can be defined as the race of structures such as businesses, individuals, groups or systems to gain an advantage in a market (Herdem, 2014). Competitiveness has become one of the central issues of government and industry in every country and nation (Porter, 1990).

The concept of competitiveness can be defined as a set of institutions, policies and factors that determine the productivity level of a country. The productivity level determines the rate of return on investments in an economy. The better this return, the higher the welfare level (World Economic Forum, 2017-2018: 317).

Competitiveness is to offer goods and services in both domestic and foreign markets in the way, time and place desired by the buyers. In other words, the concept of competitiveness is defined as obtaining the lowest opportunity cost from the resources used at better prices than other potential suppliers (Cook and Bredahl, 1991).

The definition of competitiveness will differ according to the needs and mission of societies (Saxena and Lozac's, 2010). Therefore, handling the concept of competitiveness at a single level may lead to complex definitions. Competitiveness in general; factors such as innovation, productivity, sustainability, exchange rate, interest, inflation and unemployment rate, and it includes the effects of these factors on competitiveness

(Markusen, 1992; Rapkin and Strand, 1995; Porter et al., 2000; Aktan and Vural, 2004; Gürpınar and Sandıkçı, 2008).

2.5. COMPETITIVENESS LEVELS

As we come today, competitiveness has begun to be addressed in a wider range of different areas. With the acceleration of technological developments, traditional systems are completely replaced by technology fundamental new generation systems. With these developments, people's desires have varied, so it has become more difficult to gain competitive power. Firms have started to be insufficient to provide both these needs of people and these differences (Fırat, 2019).

From an economic point of view, the concept of competitiveness includes many variables and is a multidimensional concept (Eraslan, 2014). Competitiveness can mean markedly different at various levels of analysis, such as national/international, industry/sector, and enterprise/firm. According to Porter (1990).

The concept of competitiveness emerges in three different dimensions based on quality, speed, technical superiority, service and product differentiation. In this context, competitiveness levels are expressed in three levels: (1) macro (national), (2) meso (sectoral), and (3) micro (firm) (Eraslan, 2014).

2.5.1. National/ International Level Competition (Macro)

According to the definition of the World Economic Forum (WEF) (1996), competitiveness is the ability of a country to achieve sustainable high growth rates in GDP per capita (Eraslan, 2008).

Similarly, a more detailed definition made by OECD (1997) is international competitiveness, the ability to produce goods and services competitively in international markets and free market conditions. Competition at this level tends to continuously increase the welfare of citizens (OECD, 1996a; National Competitiveness Council, 1998; Togan, 1999).

The National Competitiveness Council (NCC) defines national competitiveness as the ability to succeed in markets that provide better living standards for all (NCC, 2003). Fagerberg (1988) defines international competitiveness as the ability to realize the basic

economic policy objectives of a country, especially economic growth and employment growth, without causing balance of payments problems.

Scott and Lodge (1985) linked competitiveness at the national level to increasing returns from a country's resources. Accordingly, national competitiveness is the ability to create, produce, distribute and/or serve products in international trade. In conclusion, it can be summarized that national competitiveness means successful trade performance in international markets that will ensure sustainable and rising living standards.

2.5.2. Industry/ Sector Level Competition (Meso)

Industry, which is the basic concept, refers to the whole of companies that produce a good or service and are in competition with each other. Firms can increase their competitiveness by giving importance to human capital and technological developments (Gür, 2011). At the meso level (industry) competitiveness is the ability of firms belonging to a nation to achieve sustainable success against their foreign competitors (Eraslan, 2014).

Competitiveness at the industry level is an approach that is accepted as the ability to compete with satisfactory rates of return, especially in international markets. Studies show that companies competing in the international arena are those that have the capacity to continuously improve and innovate. Thus, competitive advantage is not based on static effectiveness or optimization within fixed constraints, but on innovation and improvement capacity that changes constraints (Firat, 2019).

According to Markusen (1992), sectoral competitiveness is that an industry is in a more productive position in its market share compared to its competitors and it ensures the continuity of this productivity position. In other words, sectoral competitiveness explains that the firm produces and sells higher quality, faster and lower cost than its competitors (Markusen, 1992).

Markusen (1992) defined competitiveness at the industrial level as the ability to develop goods and services that meet the standards and demands of international markets. Industrial competitiveness allows to realize inventions and innovations that enable products and services to be produced at lower costs.

United Nations Industrial Development Organization (UNIDO) (2002), on the other hand, builds industrial competitiveness on five different basic dimensions (skills,

technological effort, foreign direct investment, money transfer from abroad and technical payments, and modern infrastructure facilities) (Zhao and Zhang, 2007).

Competitiveness at the industrial cluster level is another subject that attracts attention and is evaluated under this heading. Cluster level competitiveness is analyzed by comparing clusters operating in the same industry but in different regions or different countries with open trade (Depperu and Cerrato, 2005).

2.5.3. Business/ Firm Level Competition (Micro)

The definition of firm level competitiveness is easier than the definition of industry level competitiveness. Industrial competitiveness is found by comparing the industries of different countries and different regions. Here, the productivity and performance degrees of the industries in international market shares are examined (Genç, 2016).

Competitiveness is a concept that is most frequently applied at the firm level. Therefore, the concept of firm-level competitiveness is literally at the center of the economy (Firat, 2019). The competitiveness level of firms operating in any of the agriculture, industry or service sectors is defined as micro-level competitiveness. If a firm has the ability to offer goods and / or services produced in global (and therefore national) markets at a lower cost and higher quality (in line with standards and / or customer expectations), this firm is considered to be competitive at a micro level (Eraslan, 2014).

The more competitive a firm is, the greater its market share will be (Firat, 2019). Since the level of micro-competition constitutes the important economic core of a country, it represents one of the cornerstones of meso and macro level competitiveness (Eraslan, 2014).

Porter (1998) pointed out that companies, not countries, compete in international markets. Accordingly, firm level (micro) competitiveness is the building block of competitiveness at industry and national level. Firm-level competitiveness that attracts the attention of both academics and practitioners; It is the firm's design, manufacture or marketing of its product much better than its competitors, taking into account price-related features (D'Cruz and Rugman, 1992).

In business theory, how competitiveness can be achieved at the firm level is explained with a market-based perspective and a resource-based perspective (Berger, 2008).

In the market-based view, a company's competitive advantages explained by environmental factors. This view, which is based on the ideas of industrial organization

theory, goes back to the structure-behavior-performance-hypothesis and defends the view that firm strategies are shaped depending on the external environment (Haarla, 2003).

The basic idea is that market structure affects companies and their behavior. In other words, companies can develop different performances to the extent that they base their ability to adjust their strategies according to market structures (Berger, 2008).

2.6. COMPETITIVENESS MODELS

In this study, 11 of the competitiveness models are discussed as below.

2.6.1. Kim's Competitiveness Model

This model was developed by Kim in 2000 for competitiveness in the field of tourism. According to this model, the tourism sector is examined in 4 stages as primary, secondary, tertiary and quaternary resources (Göçen, 2013; Çelik, 2014; Bahar, 2004).

In Kim's competitiveness model, these four basic sources also contain seventeen indicators. It is revealed that these indicators determine the competitive power of the destination. Among these four determinants, the fourth is the most important factor and strongly affects competitiveness. However, in this model, there is no test applied to measure the competitiveness of the destination empirically. Another point that complicates the measurement of competitiveness is that more than one factor examined in the model presents a qualitative appearance (Çelik, 2014).

2.6.2. Ritchie and Crouch's Conceptual Competitiveness Model

This model is one of the most widely studied models among competition models. Ritchie and Crouch (1999: 146) created their own conceptual model based on Porter's diamond model by adding the parts they deem missing. According to Ritchie and Crouch, a competitive destination brings prosperity and success to both the region and the country. The way to achieve this prosperity and success is possible by realizing a sustainable competitive advantage of the region or country (Bahar, 2004; Göçen, 2013; Erbaş, 2014; Çelik, 2014; Heper, 2015).

Crouch and Ritchie's conceptual competition model consists of macro and micro environment as two different environments related to each other. The competitive (micro) environment constitutes the most prominent elements that define the direct competitive field. Microenvironment factors include travel industries, tourism markets, and a

destination's public and public stakeholders. In the macro environment, there are forces at the global level that are effective in the development of tourism (Crouch and Ritchie, 1999).

2.6.3. Dwyer and Kim's Integrated Competitiveness Model

This model was developed by Dwyer and Kim in 2001 (Aslan, 2011). This model emerged from the combination of Porter's national competitiveness elements and Ritchie and Crouch's destination competitiveness model elements. Dwyer and Kim developed this model as a general competitiveness that allows comparison between countries and the tourism industry. In the model, the demand condition factor is the most important indicator that is effective in determining the competitiveness. This reveals the clearest difference between them and the Ritchie and Crouch model (Çelik, 2014).

According to this model, the competitiveness of the tourism sector includes many elements such as natural environment, artificial environment and globalization of markets (Navickas and Malakauskaite, 2009; Çelik, 2014).

Factors in Dwyer and Kim's model; It consists of inherited resources, created resources, support factors and resources, destination management, situational conditions, demand conditions, destination competition, destination competitiveness indicators, socio-economic welfare and national/regional competition indicators (Dwyer and Kim, 2003).

This model aims to increase the level of regional and national welfare in a global competitive environment (Sert and Şahbaz, 2017). The model is also important in terms of revealing the factors that create the strengths and weaknesses of various tourism destinations (Çelik, 2014).

2.6.4. Enright and Newton Model

According to Enright and Newton, competitiveness is becoming an area of increasing interest among researchers. This model is built on the competition of tourism destinations. Enright and Newton presented a model combining typical factors of destination attractiveness with competitive factors of general industry. Tourism attractions are directly derived from Crouch and Ritchie's element of primary sources and attractions. Very special elements of tourism; summarized under the title of destination attractiveness and image (Enright and Newton, 2004).

In other words, according to Enright and Newton, a competitive tourism destination should be attractive and provide value to the customer. At this point, competition is related to industry-related factors as well as being related to specific factors (Heper, 2015).

According to Enright and Newton; Competition in tourism destinations generally depends on specific and general factors (Enright and Newton, 2004).

2.6.5. Anett Tozsér's Competition Model

In Tozsér's model, the close links between the principles underlying competitive and sustainable tourism are taken into account. For this reason, it is emphasized that the aim of competition between destinations in the international market is to increase the number of customers, to ensure economic and professional growth in tourism (increase in tourism-related revenues and to guarantee profits for businesses) and to raise the living standards of the people concerned. According to the Tozsér model, a region can only compete if it provides an increase in tourism-related revenues and a higher standard of living in the long run. Thus, the relevant region can develop significantly (Tozsér, 2010).

Different from other models, Tozsér (2010) includes the following in his model: The factors and connections of the new model include giving importance to the interests of the public, considering the tourism framework and the entire travel / vacation process, linking competition and sustainability, and the importance of tourists' travel experiences (Tozsér, 2010).

According to Tozsér (2010), the quality of services before and after travel also affects tourists' views about travel.

2.6.6. Robert Reich's Knowledge-Based Approach (Unifying Approach)

Robert Reich developed this model with the belief that Porter's model was deficient. Reich's critical approach; Porter's emphasis on national qualities, which are the source of organizational advantages, in determining global competitiveness (Timurçin, 2010).

Robert Reich criticized Porter because it was based on the Diamond Model (Sarıçoban, 2016). The phenomenon advocated in this model is the dimension of globalization and nationalization of the national nature of businesses (Timurçin, 2010: 66).

They carried. At this very point, Reich emphasizes the importance of knowledge and sees it as a new production factor in economic development (Sarıçoban, 2016).

Reich states that national enterprises, even national goods, will have no value in the future (Timurçin, 2010). He also underlines that the economies of the future will be those that create high value instead of creating high volume. So very few goods will have a certain nationality. Goods can be produced efficiently in many different locations and combined in styles to suit customer requirements. Since human and financial capital is active in such an environment, there will be an increase in production. In the new economy, Reich divides the workforce into three as symbolic analysts (creative talent and knowledgeable workforce), routine production workers (low demand with mechanization) and personal servants (personal service provider) (Sarıçoban, 2016).

According to Reich, companies no matter big or small, they have to be leaders in all world markets and developed countries and maintain this position. Today, competition in the world is multinational (Sarıçoban, 2016).

Knowledge defines these highly competitive and advanced multinational markets. For this reason, in the knowledge-based approach, who has more knowledge workers determines the competitive power of the companies rather than the national identity they belong to (Sarıçoban, 2016).

Countries that will have a competitive advantage will be the ones that produce high doses of value among the global connections that will be formed in the coming years. Reich refers to knowledge, which is the essential condition for producing this high value. The situation that causes employees in the enterprise to gain power over the managers is the concretization of knowledge on individuals within the enterprise and integrating them. Informal information is the information that creates the most basic added value. The fact that this approach has been justified is the obsolescence of patents in economies with high production technologies (Timurçin, 2010).

2.6.7. Cho's Nine Factor Model Approach

Cho's Nine Factor Model is another competitiveness model applied to analyze national competitiveness. The model activates competitiveness in three different ways (Timurçin, 2010). These are physical factors, human Factor, and external factors.

Of these, physical factors are the main factor affecting competitiveness. Related and supporting industries, internal environment, domestic demand, natural resources form the internal spool of physical resources. Politicians (policy makers), businessmen and the

entrepreneurial mass that make investments constitute the human factor content. There is no concept in the third factor, external factors (Timurçin, 2010).

Nine Factor Model; It consists of nine factors: politicians and bureaucrats, employees, chance events, demand conditions, managers and engineers, factor conditions, related and supporting industries, entrepreneurs and natural resources (Ahmadov, 2010; Cho et al., 2005).

2.6.8. Paul Robin Krugman's Competitiveness Approach

Krugman states that, unlike the perception of competitiveness in Porter's Diamond Model, countries cannot compete as firms can compete. Krugman did not find it right that the fate of a country is largely determined by its success in international markets. He argues that this is a complete misconception, both practically and empirically. As a matter of fact, the leading countries in the world are not even in competition with each other economically (Sarıçoban, 2016).

In the Krugman approach, the competitiveness of firms, not countries, is dominant. Therefore, the starting point in this model is efficiency, not competitiveness (Akiş, 2008).

Krugman accepts that some macroeconomic indicators can be determined in the context of national factors and emphasizes that the determinant of competitiveness is productivity (Sarıçoban, 2016).

In other words, while efficiency is not an important phenomenon in international competition, it is a phenomenon that should be taken into account for competition between companies. While the success of any firm leads to the success of another firm, this is not valid for competition between countries (Sarıçoban, 2016).

Krugman states that the concept of competitiveness will show differences at the level of companies and countries, and states that companies are likely to fail, but countries are not under such a risk. Krugman draws attention to the fact that today, even if countries have production costs, similar technologies and similar choices, international trade can be made and free trade will provide gains to countries. This shows the most important feature of this model (Yüksel and Sarıdoğan, 2011).

2.6.9. Dunning, Multinational Firms and Competitiveness

In his competitiveness model, Dunning created a synthesis by adding the superiority factor of Multinational Companies (MNCs) to Porter's Diamond Model and Reich's knowledge-based competitiveness approach (Sarıçoban, 2016).

Dunning argues that Porter's model lacked any original ideas. Porter examined only 4 factors to create competitive advantage and excluded factors such as investment and entrepreneurship (Gökmenoğlu, 2012). Beyond the Dunning Diamond Model, he argues that foreign direct investments are especially effective in the emergence of each of the four factors (Sarıçoban, 2016).

The researcher criticized Porter's underestimation of the state's economic role, not seeing it as a part of Elmas, and not having an analysis to prove this proposition. In this respect, Dunning emphasizes that Multinational Firms have an important role in global competition and also discusses that these firms make the majority of their production outside the national borders. Therefore, according to Dunning, Multinational Firms (CUF) should be included in the model as the third exogenous variable (Gökmenoğlu, 2012). Thus, with the increase in productivity, there will be an increase in production and profitability. He explains that this is due to the technological innovations that CUFs bring to the host countries in which they invest.

Dunning argued that innovation is beneficial only to local firms. According to him, the reason for this is that innovation is national in character. In addition, there is an increase in employment and welfare levels. As a result, the state and firm factors gain importance and international competitiveness is achieved (Sarıçoban, 2016).

2.6.10. Rugman and D'Cruz Double Diamond Model

Rugman and D'Cruz criticized Porter's Diamond Model by arguing that it is applicable for developed countries such as the USA, Germany and Japan, but not suitable for undeveloped and small countries open to foreign trade. Due to this shortcoming, the Double Diamond Model has been developed. On the other hand, Porter's Diamond Model has also been praised for considering the international competitive strategy, economic and competitive advantages of countries (Sarıçoban, 2016; Gökmenoğlu, 2012).

They state that the competitiveness of small countries emerges in the Double Diamond Model, and developed countries (USA, Japan and EU countries) and their own Diamond Models (Sarıçoban, 2016). Thus, this approach expands on Porter's single-Diamond

Model. In this way, it also spreads the geographical resources of the firm's unique talents, including the Diamond Models of the countries with which it interacts with foreign direct investment assistance.

Rugman and D'Cruz explained the Double Diamond Model in a study in which they dealt with the Canadian example. According to the study, the free trade established with the USA has brought the region into operation. This showed that all the policies implemented in Canada were invalid. With Canada's free trade agreement with the USA, the Canadian demand conditions factor, which is weak, can enter a market with a higher factor. This shows that a corner of the diamond varies according to the diamond of another country (Sarıçoban, 2016).

In his research on the Competitive Advantage of Nations, Porter suggested that in the next decade, Singapore will be in the factor-driven economy phase (the first phase of economic development), while Korea will reach a point of high development. However, the opposite happened, and it was observed that Singapore developed more than Korea. Accordingly, Moon et al. developed the Generalized Diamond Model and questioned the validity of Porter's theory. Thinking that this developed Double Diamond Model is suitable for New Zealand and Canada, but not suitable for similar small countries including Korea and Singapore, they converted the Double Diamond Model to the Generalized Double Diamond Model (Gökmenoğlu, 2012).

2.6.11. David Ricardo Disclosed Comparative Advantages Approach

This approach is based on trade and the theory is based on differences in labor productivity between countries. Ricardo emphasizes the differences in technology between countries and states that this causes differences in labor productivity (Sarıçoban, 2016).

According to Ricardo, for any two countries to specialize in foreign trade, the goods do not necessarily have to be lower in price than other countries. Because the price difference between these two goods also provides specialization (Demir, 2001). Accordingly, competitiveness is based on the determination of relative prices (Sarıçoban, 2016).

The Heckscher-Ohlin theory is also trade-based and is intended to measure competitiveness. This theory, contrary to the Ricardo theory, argues that the technology levels of the countries are not different, on the contrary, cost differences between

countries play an active role on the competitiveness of countries. For this reason, countries use factors that are cheaper than themselves more intensively in order to provide specialization. Accordingly, in both theories, competitiveness is based on the determination of relative prices. For both theories, comparative advantages are difficult to measure due to the unknown pre-trade relative prices. At this point, Bela Balassa steps in by explaining that it is not necessary to know the pre-trade prices and that comparative advantages can be measured by analyzing the existing trade. It is a frequently used method today (Sarıçoban, 2016).

The measurement of competitiveness is done with the help of data, usually using Balassa's method. This method was first applied by Leisner. To measure the competitiveness of a country in a particular product or commodity cluster with post-trade data, Balassa expresses the country's total share in this product or commodity cluster as the ratio of this product to its total share in total world exports. Accordingly, this index shows the existence of a country's comparative advantage in any product or commodity cluster (Sarıçoban, 2016).

2.7. COMPETITIVE STRATEGIES

The introduction of the concept of competitiveness into the business literature coincides with the second half of the 20th century. Firms started to attach importance to planning especially in the 1950s and 60s, and competitiveness was among the priority issues in this context. In the 1970s, uncertainties started to increase in the markets and companies tried to develop strategies to get ahead of their competitors. The concept of Competition Strategies entered the business literature with the environmental developments that took place in these years (Eraslan, 2014).

Competitive Strategy, fundamental analysis unit based on industry. To formulate a competitive strategy is to define the industry structure in which the firm will operate. The overall industry structure results from the balancing of five key competitive forces (Figure 2.4) (Porter, 1997).

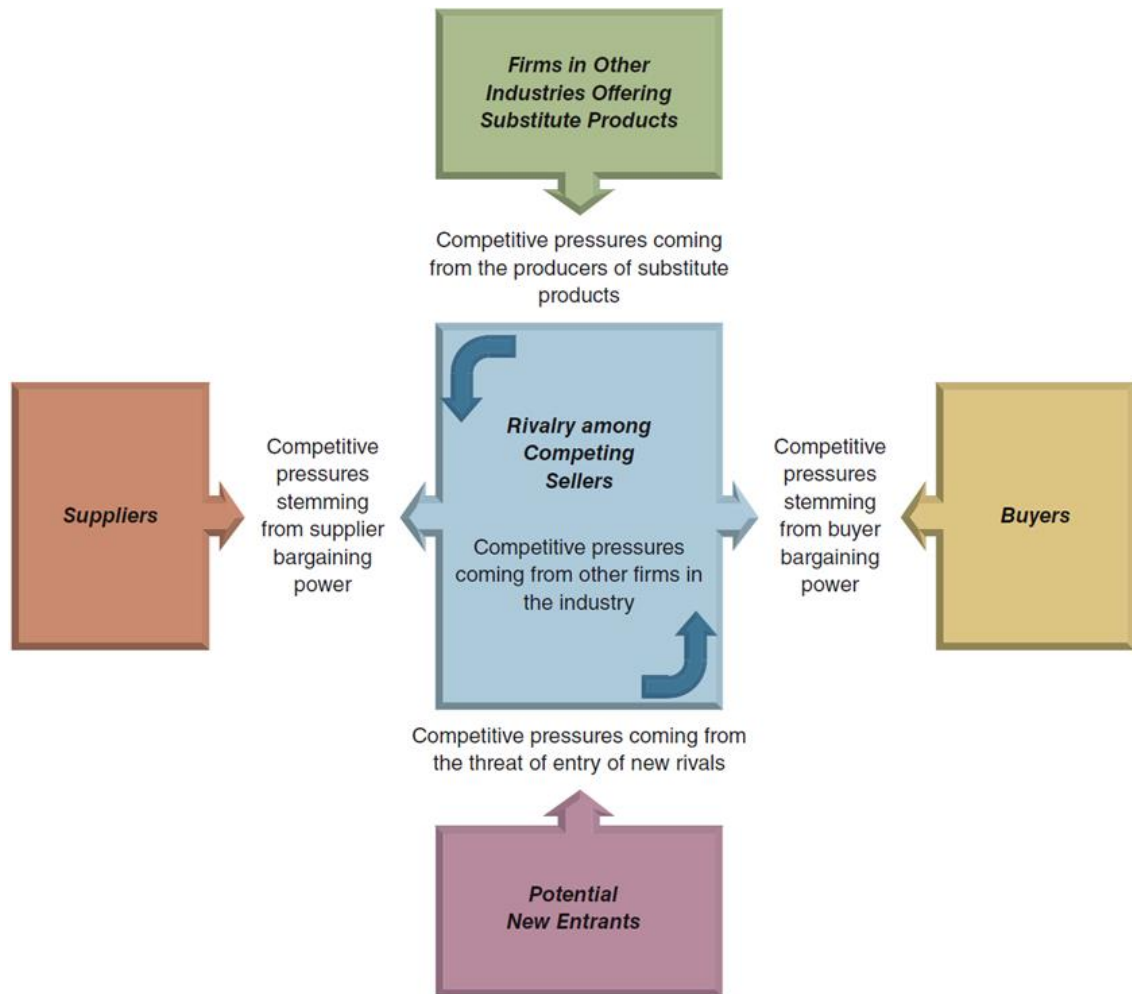


Figure 2.4. The Five- Forces Model of Competition: A Key Analytical Tool (Thompson et al., 2012).

Competitive advantage cannot be reduced to a formula or algorithm. If these are formulated, they are accessible to all and become worthless. There is no doubt that the formulas for success are diverse. But firms can make the difference as they position themselves to compete. For example, Dell PC serves a wide variety of customers, while Alienware specializes in high-end PCs for core gamers (Besanko et al., 2013).

A firm's overall strategy is defined by how it positions itself to compete in the market it serves. Figure 2.5 shows Porter's general strategies (benefit leadership, cost leadership, and focus) and briefly explains his economic rationale (Besanko et al., 2013).

The factors that influence a firm's competitive advantage are: designing, producing, marketing, delivering and supporting its product. Each of these activities can contribute to the firm's relative cost position and provide a basis for differentiation. The value chain

provides an understanding of the behavior of firm-specific costs and current and potential sources of differentiation (Ghemawat, 2000).

According to Porter (1980), there are three different competitive strategies (cost leadership-differentiation-focus) that will lead companies to competitive advantage. According to Porter (1985), a firm operating in a certain sector must adopt one of these three strategies in order to perform above the average. Porter (1980) also points out that very few companies adopt more than one of these strategies because of the high cost (Eraslan, 2008).

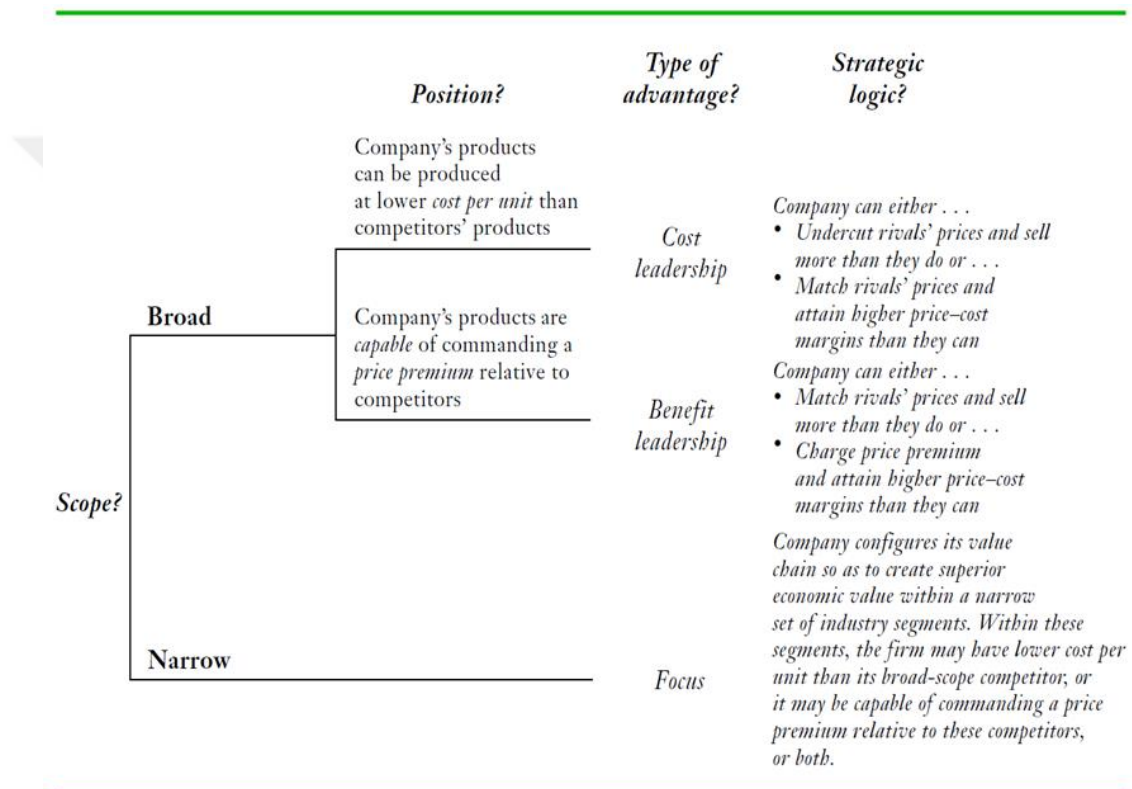


Figure 2.5. Porter's Generic Strategies (Besanko et al., 2013)

The above model explains the Cost Leadership, Differentiation and Focus Strategy. Accordingly, the Cost Leadership strategy claims that a firm will have high performance as long as it provides low cost. Differentiation Strategy claims that it is necessary for a firm to make a difference in the product or service it offers in order to gain competitive advantage. The Focus Strategy argues that for a firm to gain a competitive advantage, it must focus on a particular segment by adopting a cost leadership or differentiation strategy (Eraslan, 2014).

2.7.1. Cost Leadership Strategy

According to Porter (1980), companies adopting the Cost Leadership strategy aimed to produce at the lowest cost in their sectors and thus to increase their market share. The low cost position creates a competitive advantage for markets where customers are price sensitive (Thompson and Strickland, 1996). For the effective implementation of this strategy, the customer group whose needs are below the average should be determined (Thompson, 2001).

Porter's cost leadership approach emphasizes production efficiency. This is associated with the development of management capabilities in high-performing organizations (Porter, 1980; Veett et al., 2009). Wright (1987) cost leadership strategy; argues that it will yield good results when the bargaining power of buyers is high and differentiated products are not valuable in the eyes of buyers. Also, easy access to resources provides good results for cost-based strategies.

This competitive strategy requires firms to produce, sell and distribute the product or service they offer much faster, at a much lower cost and using much less input than competitors in the market (Banker et al., 2006). In other words, firms that adopt this strategy aim to minimize the cost for each activity on the value chain (Thompson and Strickland, 1996).

A company that creates more value than its competitors wants to turn most of that value into profit. Value inference is particularly sharp when consumers have the same preferences (the same value map applies to all consumers in the market). When a firm raises its consumer surplus 'offer' slightly above its competitors, it captures the entire market (Besanko et al., 2013).

2.7.2. Differentiation Strategy

The basis of the differentiation strategy is the capacity to bring a unique product and/or service to the market. The most important factor here is the consumer group's perception that the firm's products (goods and/or services) are different (Porter, 2000).

Differentiation strategy is based on seeing the product or service produced as unique in the whole industry. At this point, the prominent criteria are; brand image, licensed technology, special features, a strong distribution channel, and other features that can make a difference within the current industry. Uniqueness will enable the firm profit margin to be transformed into a ratio above the industry average (Bal, 2005).

According to Porter (1985), the firm achieves a better level of performance when the perceived value by the buyer exceeds the cost of differentiation. Likewise, according to Thompson and Strickland (1996), the differentiation strategy provides better performance as long as the product or service is differentiated at an acceptable cost. Differentiation-based strategies are applied to attract customers who show special interest in a particular product feature. The firm tries to establish customer loyalty by emphasizing a particular feature over other product attributes. Such loyalty provides the opportunity to set a higher price for the product. The product feature can also be seen in distribution channels, in the image of excellence, in the service network. As a result, even if competitors offer similar products to the market, customers may encounter perceptual entry barriers. In other words, even if the price of loyalty is high, the product is preferred (Pearce, 1997).

Porter's approach to differentiation is often based on technological leadership. Therefore, high-performance differentiated firms are expected to have more technological expertise than their peers (Porter, 1980; Hill, 1988; Furrer et al., 2008).

Porter (1985), in his book *Competitive Advantage: Creating and Sustaining Superior Performance*, states that differentiation can be achieved in two ways: First; The uniqueness factor that comes with differentiation reinforces originality. Latter; It reduces the bargaining power of buyers and the threat of substitute products/services (products or services that are difficult to imitate through differentiation) against the threat of new players entering the industry.

The steps to be followed in Porter (1985) differentiation strategy are: (1) Determining who the real buyer is, (2) defining the buyer's value chain and its effect on the firm's value chain, (3) determining the buyer's purchasing criteria, (4)) evaluating the current and potential sources of uniqueness in the value chain of the firm, (5) defining the costs of existing and potential differentiation resources, (6) choosing the appropriate configuration for the activities in the value chain to make the most value-generating differentiation, (7) the selected differentiation testing the strategy in terms of sustainability and (8) cutting the costs of the activities without affecting the differentiation method chosen.

However, these strategies can also bring some risks. For example, differentiating more than buyers can afford, setting a market price that is too high, and mistaking the attributes

or dimensions that buyers see as value. All these cause firms to be easily differentiated by their competitors, which can lead to failure (Thompson and Strickland, 1996).

2.7.3. Focus Strategy

Each company's unique strategic capabilities and the way they use them are different (Ambrosini and Bowman, 2009). For example, Porter's focus strategy is based on the premise that concentrating efforts on a particular market niche can yield superior performance. According to this logic, market-binding capabilities can take the lead role necessary for a focus strategy (Collis and Montgomery, 2008; Jusoh and Parnell, 2008; Parnell, 2011). A focus strategy entails focusing on a particular segment of an industry, a particular niche in the market, a particular group of buyers, or a geographic area by adopting low-cost or differentiation strategies (Porter, 1980).

Most industries can be broken down into smaller segments. Figure 2.6 shows Michael Porter's industry segmentation matrix. According to the sector segmentation matrix, any industry can be characterized by two dimensions. These; the variety of products offered by industry participants and the different types of buyers who buy these products (Besanko et al., 2013).

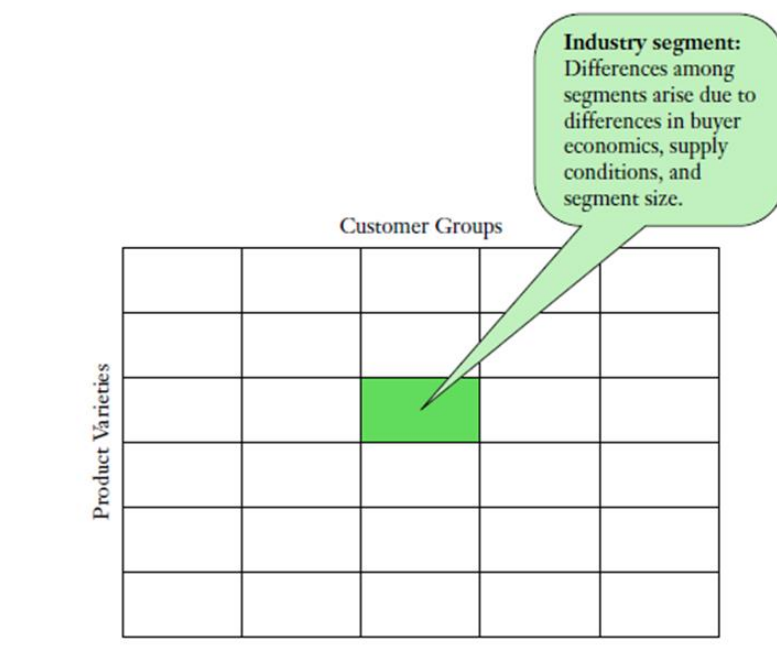


Figure 2.6. Industry Segmentation Matrix (Besanko et al., 2013) (This figure adapted from HBR, September-October 1980, 75-85).

A firm that adopts this strategy focuses on a narrow market where competition is less intense and gives up the gains or potential buyers that it is likely to derive from an entire market (Wren, 2007).

A firm with a focus strategy either offers a narrow product range or serves a narrow customer group. Sometimes it can do both. Industry segmentation matrices are used to illustrate a range of common focus strategies (Figure 2.7). This matrix illustrates three focus strategies: customer specialization, product specialization, and geographic specialization. Under its customer expertise, the firm offers a range of related products to a limited class of customers. Under product specialization, the firm produces a limited range of products for a potentially wide class of customers. As part of geographic specialization, the firm offers a variety of related products in a narrow geographic market (Besanko et al., 2013).

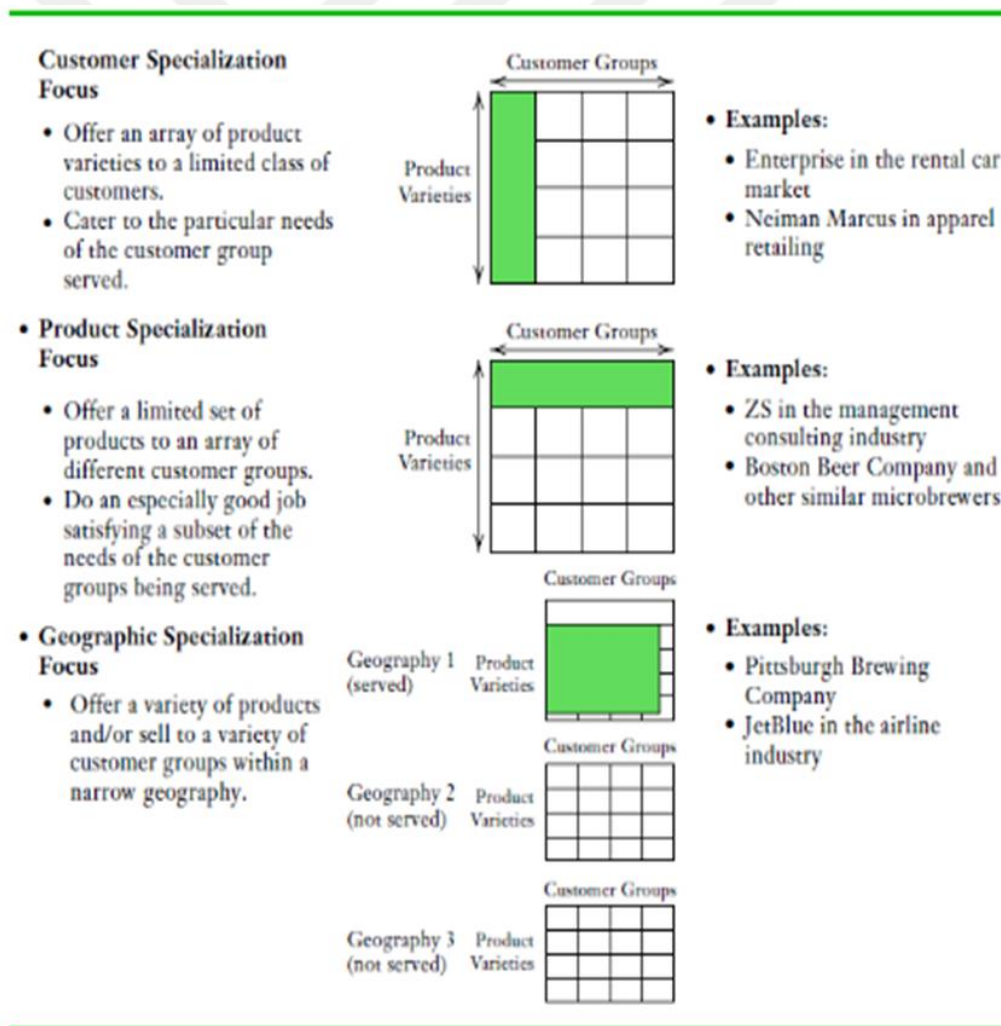


Figure 2.7. Common Focus Strategies (Besanko et al., 2013).

According to Porter (1980), it would be correct for companies that can operate more effectively and efficiently towards a narrower strategic goal than their competitors competing on a broad base. For this reason, focus is often a strategy preferred by small firms that cannot address the entire market due to the more intense competition.

Businesses that implement a focus strategy may face various risks (Pearce, 2000). The strategic target and product features required by the broad market converge and competitors start to do business in the lower segment of the focused market. On the other hand, as in wholesale cost leadership, the preferences or needs of customers in the segment may change, or companies that can serve narrower markets may enter the market. As a result, the firm may experience reductions in profit margins (Thompson and Strickland, 1996).

This strategy should not be used as a stand-alone choice for medium to large business units. The first reason is to serve a small group of buyers very well. The size of the market is very important for the investment decision. The second reason is that midsize and larger business units are less likely to generate substantial revenues, even if they are successful (Wright, 1987). If the market in line with the cost oriented strategy grows, the industry structure may change and the appropriate overall strategy may be cost leadership rather than cost oriented (Wright, 1987).

Differentiation-oriented strategies cover more complex dimensions than cost-oriented strategies. In the cost leadership strategy (used by larger firms) the main emphasis is on reducing the cost per unit by achieving cumulative trade volume for many buyers in the industry. In the cost-oriented strategy (used mainly by smaller firms), the main emphasis is on creating a lower cost per unit, a lower initial investment, and lower operating costs for fewer buyers in the industry. Thus, the result for both is cost reduction, albeit in different ways (Wright, 1987).

Seilmiř rn pazarı kapsamaları iin, farklılařtırmaya odaklanma stratejisinin bařarılı bir řekilde uygulanmasının birincil nedeni olabilir (Wright, 1987). Farklılařtırma odaklı strateji, genel farklılařtırma stratejileri ile baėlantılı olarak orta ve daha byk iř birimleri tarafından benimsenebilir (Wright, 1987).

2.8. DETERMINANTS OF COMPETITIVENESS IN THE LIFE SCIENCES SECTOR

Technological advances based on knowledge throughout human history have influenced and shaped social life. Today, the rapid development and spread of technology than at any other time in history increases its power and carries it to the global level. It is quite common that many negative phenomena experienced as a result of the use of technology are presented as technological determination, that is, the inevitable result of technology. With this understanding, technology and the use of technology have become the same. In other words, science and technology are often used together and in the same sense. The process of unifying technology and science also increases the power of technology, in a sense, it functions to make its power absolute by making it magical and inviolable.

The biotechnology industry has emerged in the last four decades as a result of the great developments in the disciplines of biochemistry, molecular biology, genetics and bioengineering since the middle of the 20th century. The industry developing in the sub-branches of health biotechnology, agricultural biotechnology and industrial biotechnology is remarkable. Increasingly successive developments in the scientific field are rapidly reflected in the industrial field. The biotechnology industry, especially in advanced industrial and information societies, is experiencing a great vitality in research, product development, process development and production.

Traditional biotechnology and modern biotechnology are considered as different fields in many respects. Traditional biotechnology is a saturated and established technology; modern biotechnology, on the other hand, is a technology that is open to innovation, has unlimited potential despite its rapid growth, but is closely tied to basic science research and infrastructure in molecular biology (Erbaş, 2008).

The knowledge, techniques and product technology of biotechnology directed towards different sectors and industries are all within the scope of biotecnica. Organizations that offer products and services in all areas of Life Sciences, from scientific research to laboratory environments, from measurement, imaging and analysis technologies to industrial processes, are considered within the scope of biotecnica.

Since the mid-2000s, many countries have begun to see biotechnology as an opportunity for economic growth and global competitiveness. Although the USA is seen

as the leader of the biotechnology sector in the world, the sector has been growing rapidly in countries such as Ireland, Israel, Singapore, South Korea, China and India in recent years.

Biotechnology, which is seen as a new technology that will leave its mark in the coming years, is called recombinant DNA technology and is based on gene transfer in distant species. The developments in this field seem to be the scene of applications that will find their reflections in all areas of agricultural and industrial production, health and social life in the coming years. While this technology provides benefits in many areas through the transfer of desired properties from other living things to plants and living organisms, it has also brought uncertainties and risks to the agenda. Therefore, studies to be carried out in this field; (1) At the scientific level, considering the benefits and risks due to the features arising from the fact that it is a new technology, ethical consideration of health, environmental and socio-economic risks will also help to take more correct steps for the future. It is extremely important to reveal these dimensions based on the opinions of different social segments; (2) On the social level, it is important for all countries to develop science and technology policies by taking into account what kind of changes the possible consequences of innovations in science and technology can cause, especially in terms of eliminating its negative consequences. However, considering the scarcity of resources and efficiency, such an analysis becomes even more important for underdeveloped or developing countries (Erbaş, 2008).

In sectors where non-renewable resources such as petroleum products are used, the raw material problem will one day arise and the search for alternative raw materials will begin in these sectors as well. Searches for the solution of such problems have begun and biotechnology has developed further. The two most important gains that biotechnology will bring to the industry are; It allows the use of renewable resources and the amount of waste is much reduced compared to the chemical industry (Akkaya and Pazarlıoğlu, 2012).

Biotechnology is the whole of technologies used in biological systems, living organisms or their derivatives for special purposes, products or processing techniques. Due to this feature of biotechnology, it is one of the most controversial areas of today. So much so that, thanks to this technological development, man is now transforming even his own natural structure, and even moving towards a period in which he is creating. The

most important and controversial issue of the time period we live in is the breakthrough developed in this area. Since the development and application of this technology is increasing day by day, the time period we live in is called the century of biotechnology by some and the revolution of biotechnology by others (Erbaş, 2008).

With the world population reaching 8.3 billion in 2030; the need for safe food and feed, clean water and energy will increase; Most of the production and consumption of biotech products in industry and primary production will shift to developing countries such as China, India, Brazil and South Africa. A large part of these countries, especially China, are on the way to becoming a world center in biotechnological research with the supply of qualified manpower (T.C. Ministry of Science, Industry and Technology, 2015).

According to the KPMG Pharmaceutical Industry Report (2018); Human is at the center of the change process in the world. Man, as a living being, is in a constant state of change. People's habits, lifestyles and preferences as consumers are constantly changing. Life expectancy is getting longer, the level of immunity is changing. Environmental effects and health problems are becoming more and more diverse. Incurable diseases are waiting for the pharmaceutical industry to develop itself, its products and the formulas of the future at a pace that tests hours, not years. For this reason, the pharmaceutical industry is one of the fastest growing and most intensive R&D investments in the world (KPMG, 2018).

Adverse living conditions trigger the development of the pharmaceutical industry in every aspect. At this rate of development, the pharmaceutical industry must achieve both quantitative and qualitative growth. This qualitative growth includes efficiency studies, comprehensive improvement of human resources working in the sector, and most importantly, the processes of completing the production transformation (KPMG, 2018).

On the other hand, the rapid change in technology and more accessible information are changing the consumer profile. The age of high-profile consumers who are aware of their needs, question options and make more effective decisions is felt in every area. What the changing consumer profile means for the pharmaceutical industry; It emerges as the patient's ability to choose more and more drugs, except for compulsory and non-substituted drugs.

Today, the effect of raw materials or systems in their compositions has gained importance for the expected or targeted properties of cosmetic products, which are indispensable elements of daily care. This importance has led to an increase in the production of new raw materials and the use of new technologies. In natural raw materials; new natural ingredients gained importance in the cosmetics industry with the 'green movement' that started in Europe at the end of 1960, and they were used in herbal, marine, mineral, etc. Originated and even organic cosmetic raw materials, mixtures and finished products have quickly found their place in the market (Yapar and Tanriverdi, 2016).

On the other hand, it is foreseen to use new technologies in the development of new cosmetic products and to transfer innovations in the field of pharmaceuticals, and these are primarily anti-aging. For this reason, the active ingredients and formulation forms to be used in cosmetic product development and the technologies to be used will play an important role in determining the effectiveness and safety of the cosmetic product (Yapar and Tanriverdi, 2016).

The Cosmetics Sector, and especially the cosmetics retailing, is one of the most dynamic commercial sectors all over the world and especially in Turkey. Despite the fluctuations in the world, the size of this market has a turnover of 120 billion dollars. The growth rate of the cosmetics industry in the world is 5% per year, and the growth rate in Turkey is approximately 10% (T.C. Ministry of Health, 2017).

MEIS is the area with the highest innovation intensity and R&D activities. In this case, research in the field of biomedicine requires a large amount of scientific resources and a well-educated workforce. In this context, MEIS works together with basic technology fields, and sometimes products are produced with a combination of these sectors.

MEIS is one of the largest industries in the healthcare field. The aging of the world population, the increase in chronic and living conditions-related diseases, the advancement of science and the increase in purchasing power are the main factors in the growth of MEIS. The rapid spread of information globally, the desire of countries to develop their own technologies and increase their exports, the more controlling attitude of the regulations of the countries in patient safety and health outcomes, the more positive attitude of global companies to local cooperation, the efforts of health service providers and purchasing organizations to reduce costs and The health plans they have made have

brought about significant changes in the demand and supply of health services (T.C. Ministry of Health, 2017).

Developed countries in the world manage their resources much better and use the right resources effectively. Production activities in developing countries generally start with low and medium-level technological products and it is known that they develop with the right strategies.

The USA, Western Europe and Japan are the prominent countries in the MEIS market in terms of their size and R&D activities. The fact that the companies producing MEIS in these countries also operate in other areas of the industry contributes to the R&D infrastructure for the products. The fact that the USA is a leader in the medical device market is a result of the importance it attaches to innovation and R&D activities. Medical device production in developed countries is carried out within the framework of high standards as required by GMP (good manufacturing practices), and better inspection mechanisms make the sector even stronger (T.C. Ministry of Health, 2017). In general, multinational companies such as General Electrics (United States of America), Siemens (Germany) and Philips (Netherlands) play the leading roles in the sector. It cannot be measured exactly. However, it is estimated that companies have a share of approximately 90% of total sectoral sales.

Clean environmental technologies adopt a mission to protect the environment, such as increasing the use of clean energy and encouraging the production and implementation of environmentally friendly solutions. Companies that adopt clean environment technology create value by using renewable energy sources and producing less waste in any product, service or process (Bjornali and Ellingsen, 2014).

By embracing clean environmental technologies, companies are creating ways to manage cities' traffic and public transport, reduce emissions and save fuel in real time. Clean environmental technologies now go far beyond energy or economy. Thanks to clean environmental technologies, smart cities are formed, water and foodstuffs are protected, new substances are created and waste generation is reduced (Greenwood and Qasier, 2017).

2.9. ORGANIZATIONAL INNOVATIVENESS AS A DETERMINANT OF COMPETITIVENESS IN THE LIFE SCIENCES SECTOR

Dynamics affecting intense global competition; It is shaped by the developments in information and communication technologies and the increase in product/service diversity according to customer expectations. In this volatile environment, every firm uses some strategies while competing openly or closed. Some companies gain competitive advantage while others fail (Walker, 2009). In strategic management, it is questioned why some companies in the same industry systematically outperform others. Competitive advantage manifests as superior economic performance (Acar and Acar, 2012).

The following processes are needed to shape and achieve an organization's strategic and operational goals: These are the development, implementation, planning, management, control and coordination of technological capabilities. In business, technology is used to produce goods and provide customer service. In this context, innovativeness is very important for an organization. It is necessary to attach a high level of importance to innovativeness in order to be competent and gain competitive advantage, especially in sectors that are highly dependent on technology (Zaidi and Othman, 2011).

When a new and cutting-edge technology emerges in a mature industry, two things are done: First, it examines whether the new technology is compatible with the company's core capabilities. latter; It is evaluated whether the new technology requires very different capabilities. Tushman and Anderson (1986) termed these two types of developmental competencies as enrichment and destruction (Nelson, 1991).

According to Lazonick and West (1998) innovative business theory, business enterprises in developed economies must achieve a higher 'organizational integration' to maintain their competitive advantage. Competitive pressure is always felt. In response to this pressure, the emergence and structure of new forms of organization are influenced by particular institutional contexts competencies (Lam, 2004).

Firms cannot survive for long simply by producing a particular product. Firms must either innovate or be a part of innovation. The skills that the academic literature focuses on are the ability to innovate and derive economic advantage from innovation. The business studied here is concerned with 'innovation', where it adds something new to the

economy in the form of a new technology or a new way of organizing a firm. What matters is what is involved in innovation (Nelson, 1991).

Two factors are noteworthy about the relationship between organization and innovation. One is how technology and market forces shape organizational outcomes, and the other is how innovation affects the organization as a mediator or facilitator. For example, we can assume that technological innovation triggers organizational change. Because this changes the competitive environment and compels to adapt to this environment (Lam, 2004).

The environment itself is a determining factor for the organizational performance of changes. More and more intense changes are taking place in both the external and internal environment of the organization. That is why organizations must innovate and always be innovative (Borocki et al., 2013).

The innovative failure of one firm may be a source of inspiration for another firm. Discovering this is crucial, both academically and professionally. Multinational companies in the pharmaceutical, biotech, medical and other knowledge-based industries are likely to find it attractive (Mohoney and McGhan, 2007).

In business science, it is intriguing what makes a firm change direction and become a competitor. For example, technological progress has been the main driver of economic growth in the last two centuries, while organizational change has been a protector. But companies that can direct and support R&D cannot achieve this technological advance without developing new organizational ways to profit from these investments (Nelson, 1991).

The biotechnology sector continues to progress towards becoming a clinical science supported by data analysis. Therefore, it is foreseen that biotechnology companies should make growth sustainable by adopting new technologies and innovations related to the business model. In the report, where it is stated that biotechnology companies attracted 51.1 billion US dollars of financing in 2016, it is emphasized that this amount is the third highest level of financing for the sector on an annual basis. While there were 79 mergers and acquisitions worth US\$ 94.4 billion in the biotechnology sector in 2016, it is stated that these figures are the second highest level recorded by the sector in terms of value and volume. R&D expenditures, on the other hand, increased by 12% compared to the previous year and reached a record level of 45.7 billion USD (EY, 2017).

The fact that there is always the possibility of not taking the first step in the market after a long time spent on innovative treatment investments for R&D in the pharmaceutical industry can curb the innovation appetite in this industry. However, despite all these negative factors, one of the factors that brought the most important companies of the sector to their current size is the momentum they have created in the world market with the generic drugs they produce.

In summary, organizations that can turn the environmental, population, resource and economic problems we face into opportunities will gain competitive advantage. For this reason, it is imperative to switch to a sustainable growth model based on the principle of balanced use of natural resources. Innovation and its applications will play a crucial role here. As in every field, the final word in this matter will be the consumers who prefer environmentally friendly and sustainable products and services. In this context, the longevity of traditional production forms will be determined by the limits of available resources and the conscious preferences of consumers.

CHAPTER III: INNOVATION AND ORGANIZATIONAL INNOVATIVENESS

Today, innovation is an indispensable element for businesses. It is difficult for businesses to maintain their competitiveness due to constantly developing technology, increasing and changing customer needs and demands, and increasing problems in accessing financial resources. For this reason, businesses should create and maintain an effective innovation process in order to increase their competitiveness (Parida et al., 2012).

When a new technology is developed in an industry, a wide variety of approaches and strategies for innovation are adopted by firms. The visibility of these approaches depends on experience. Companies that make the right choices will be successful. Those who fail should either continue or drop out of school (Nelson, 1991).

According to the literature, there is a positive relationship between innovation and profitability (Geroski et al., 1993). Profit margins of innovative companies are more stable. Therefore, it is necessary to examine the relationship between innovation and profitability (Dosi et al., 2000).

According to Schumpeter, innovation is central to economic analysis. Under the same conditions, all firms will do the same. Producing only a certain set of products with a certain set of processes will not sustain a firm for long. To be successful in any period, a company must innovate (Nelson, 1991). The innovative failure of one firm can create real growth options for another firm (Kögüt, 1991; Bowman and Hurry, 1993; Trigeorgis, 1996; Mohoney and McGhan, 2007).

Innovation is a smart and complex combination of relatively existing technologies. Seen in this context, no patent wall can keep competitors out. Aware of this vulnerability, it prompts managers to think more carefully about whether there is a potential advantage due to innovation, the length of the expected entry delay, and their firm-specific learning

or asset mass efficiencies. Thus, members of the organization develop their skills in this sense (Peteraf, 1993).

Firms behave differently against market differences and perform accordingly. In the theoretical literature, any firm can choose any niche. That is, there are certain differences for firms, but there is no fundamental autonomous character for them (Nelson, 1991).

One of the strategic challenges facing an innovative firm is the possibility of hard-to-imitate internal and external competencies to support valuable products and services, says Schumpeter. Thus, Dierickx and Cool (1989), choices about how much to spend (invest) in different possible areas are central to firm strategy. However, choices regarding competence areas are related to past choices. At such a time, firms must follow a certain trajectory or competency development path. This path not only defines what options are open to the firm today, but also determines what its internal repertoire will be in the future. Therefore, innovation is of vital importance for companies (Teece et al., 1997).

Through innovation, business organizations have the opportunity to open up to new markets and thus achieve more sustainable growth (Van de Vrande et al., 2009). New markets It provides both market share and turnover increase in terms of gaining new customers in addition to existing customers (Cantner et al., 2011).

In addition, innovation increases efficiency. In this way, the ability to produce products at lower costs and to carry out business processes more effectively brings competitive advantage (Çiçek and Onat, 2012).

In addition, it has been found that business organizations that successfully carry out innovation export higher amounts compared to business organizations that do not innovate (Blyde et al., 2018). In particular, the radical innovation mentioned in the previous section positively affects the export of the enterprise organization after a certain period of time, while incremental innovation increases the export intensity in a much shorter time (Dohse and Niebuhr, 2018).

When a firm develops a successful innovation, it is imitated by its competitors. Effective innovative counterfeiting requires the firm to perform most of the design and development activities and implement other supporting activities. Therefore, firms with similar strategies and core capabilities are in a much better position than firms with different strategies and capabilities (Nelson, 1991).

In addition to all these, innovation is also one of the indispensable elements for the development of a country's economy and increase its welfare level. Because the development of modern societies is related to their ability to create innovative knowledge at a certain level. At this point, commercializing and presenting the information produced in research institutions and business organizations to the economy through business organizations emerges as one of the most important steps in increasing the welfare of countries (Robin and Schubert, 2013). In addition, since technology transfer takes time, innovation ensures that the economies of countries that develop new products are ahead of their per capita income compared to other countries (Krugman, 1979).

In summary, innovation not only benefits business organizations to protect and even increase their competitiveness, but also enables the development of economies in which business organizations are involved as a whole.

3.1. INNOVATION

The concept of innovation entered the business organization literature with Schumpeter. This concept has become one of the most triggering elements of a strategic competition over time (Demirel, 2020). Different aspects of innovation are widely discussed in the literature. Companies aim for sustainable innovation to ensure sustainable profit growth. Existing literature emphasizes that a well-structured (Okatan, 2017).

Modern companies cannot establish a dominant position and gain competitive advantage in a market they are interested in without being innovative (Borocki et al., 2013). For this reason, the concept of innovation will always keep its place on the agenda of business organizations.

World business balances and information technologies are constantly changing. In this direction, customer needs and expectations are developing rapidly. Businesses have to constantly innovate in order not to lose both new customers and existing customers to their competitors. The innovation ability of companies is related to the successful use of new resources, technologies and knowledge. Methods of transforming inputs into current output values show whether the firm is innovative (Demirel, 2020).

OECD has established a standard methodology for collecting and analyzing data on innovation activities and innovative productivity in the Oslo Handbook (OECD, 2005) (Borocki et al, 2013).

Schumpeter (1934) listed innovative alternatives as developing new products or services, new production methods, new organizational forms, identifying new markets and discovering new sources of supply. Miller and Friesen (1983) focused on four dimensions: product or service innovation, new ways of producing or delivering services, risk taking by key managers, and seeking new and unusual solutions. In this case, innovation can be categorized as product or process innovation, radical or incremental innovation, administrative or technological innovation (Wang and Ahmed, 2004).

Innovation is the commercialization process that transforms an idea into a new product/service or a newly developed production/distribution method (Tirupati, 2008). The product, process, marketing and organizational method for innovation must be new to the firm or significantly improved (Acar and Acar, 2012).

According to Freeman (1982), innovation is the implementation of an innovation by the first commercial transaction involving a new product, process or system. What is meant here can be a new invention, idea, concept model, process, system or device. Change is the key feature of innovation. It is difficult to proclaim a general theory of innovation because even the phenomenon of change cannot be understood in isolation (Okatan, 2017).

The OECD is the successful marketing of innovative new or improved products and the commercial use of associated processes or equipment. Innovation consists of all the scientific, technical, commercial and financial steps necessary for a new approach to social work. Research and Development is just one of these steps (OECD, 1981).

According to the definition given in the Oslo Guide prepared by the Organization for Economic Cooperation and Development (OECD) and the European Statistical Institute (Eurostat), innovation is at least a new product for that business organization, a new way of doing business or a new process is a mechanism (OECD and Eurostat, 2005).

Drucker (2002), on the other hand, considered the concept of innovation as a function of entrepreneurship and expressed it as a process that creates new resources that generate wealth or improves the ability of existing resources to produce wealth (Demirel, 2020).

Garcia and Calantone is one of the most comprehensive definitions of innovation (2002). According to these authors, innovation begins with the perception that a technology-based invention offers a new market opportunity. Innovation is an iterative process that includes the development, production and marketing activities carried out to make this invention commercially successful. Two points are important here: First, innovation includes both the technological development of an invention and its delivery to end users through adaptation and diffusion. Second, innovation is repetitive: In other words, first a new innovation is made and then this innovation is developed (Garcia and Calantone, 2002).

Martin (2012) highlighted two areas to show the scope of innovation. The first is management: R&D, innovation, knowledge management, divisions of strategic management, new product development and technology. The second is organizational management: organizational innovation, a large part of the firm's resource-based vision - core competencies, dynamic capabilities, absorptive capacity - and organizational learning (Bagno et al., 2017).

According to Weick (1979), the system itself is the organization or organizer. Innovation is part of the system that produces it. Organizational and technological innovations are intertwined with each other. An organization's ability to innovate is a prerequisite for the successful use of creative resources and new technologies (Lam, 2004).

Innovation is a key factor in economic development, establishing new industries, increasing firm performance, in short, providing competitive advantage (Drucker, 1985; Gopalakrishnan and Damanpour, 1997).

Institutions should make sustainable the environments and opportunities where innovation can be produced. Firms will come to the fore with their innovative characters under intense competition conditions (Damanpour and Wischnevsky, 2006; Kalay and Lynn, 2016).

The concept of innovation is often confused with the concepts of creativity and invention. Innovation is above all a long process and includes the stages from generating an idea to the commercialization of an idea for the development of a new product, process or method for the business organization. However, creativity is a concept that remains

only at the level of ideas and it is defined as individuals or groups of individuals working together to produce new and useful ideas (Amabile, 1988).

As can be seen, creativity is a mechanism that manifests itself only in the idea generation phase of innovation, and it is not possible to use it as a synonym for the concept of innovation. Also, innovation doesn't just mean invention. In cases where development, production and marketing activities are not carried out and the invention has spread to the market and does not contribute economically to the business organization, innovation cannot be mentioned. Therefore, for an invention to turn into an innovation, it must offer economic value and spread to other segments (eg. customers) (Garcia and Calantone, 2002).

Abhishek (2009) highlighted 10 main features of innovation derived from the literature:

1. Certain critical inputs are required for innovation to occur. The combination of inputs creates the innovation output.
2. The inputs of innovation can be tangible and intangible. Innovation activities rely on a variety of inputs, both tangible and intangible. Intangible inputs are referred to as "knowledge assets" in economics and "intellectual assets" in business management literature.
3. Knowledge is an important input for innovation. Only creative activities adapted to knowledge can lead to innovation.
4. The inputs of innovation are assets. Most innovation inputs are produced for a single innovation line.
5. Innovation involves creating economic value. This is something that benefits the consumer and provides economic returns to the innovative company.
6. Innovation is too complex a process to be reduced to easily measurable components. It is not linear.
7. Outputs are unpredictable due to the complexity of innovation. But it is easy to characterize new entrants.
8. Knowledge is an important outcome of innovation. Whatever the results of the innovation, they bring together the knowledge of the company.

9. Innovation is necessary to understand available resources, tools, technologies, materials, markets and needs (Gamal et al., 2011). Therefore, innovative organizations provide important resources for research and knowledge.

10. Innovation includes research, development and commercialization. Innovative inputs are considered assets as they are used for future innovations (Abhishek, 2009).

Innovation is unpredictable, non-linear, complex and multidimensional. The innovation of a single measure is unlikely to be sufficiently characterized in its entirety. It is not possible to measure innovation directly. Despite all kinds of difficulties, the answer to the question of what is the only real indicator of innovation continues to be sought (Stone et al., 2008).

3.2. TYPES AND DEGREES OF INNOVATION

Innovations are sometimes a reaction to changes in the external and/or internal environment, and sometimes a preventative step taken by the organization to influence its environment. An organization has to adopt innovations in all operational segments over time. Because the environment is constantly changing. The most important innovations are those that give positive impetus to competitive advantage in the organization (Borocki et al., 2013).

Innovation is the most effective way to achieve economic success, increase competitiveness and ensure sustainable profitability (Kirner et al., 2009). For this reason, business organizations need to innovate not only in their products, but also in different fields and intensities (Demirel, 2020).

Innovations cover a wide range of changes, from minor changes to existing products, processes or services to changes that mean completely new products. Innovation increases an organization's market competence. Especially this field works in unstable working conditions (Borocki et al., 2013).

Many types of innovation have been discussed by scientists in the literature. Innovation types can be grouped under two separate headings. These are Innovation by Subject and Innovation by Density. These innovation types are detailed in the table below (Taşgıt and Demirel, 2016).

Table 3.1. Types of Innovation

Title	Types
Innovation According To Subject	Product Innovation
	Process Innovation
	Organizational Innovation
	Marketing Innovation
	Behavioral Innovation
	Strategic Innovation
Innovation According To Density	Radical Innovation
	Incremental Innovation

(Source: Demirel, 2020)

3.2.1. Innovation According to Subject

Innovation according to subject is divided into 6 different subcategories

3.2.1.1. Product Innovation

Product innovation is a critical precursor to product success. This innovation provides an opportunity to find a foothold for new entrants to the market. Innovative products are great opportunities for businesses to grow, expand into new areas and sustain business success. Important innovations put companies in a dominant position in the competitive market (Danneels and Kleinschmidt, 2001).

Product innovation identifies entirely new products or services based on improved technical details, components and materials, legitimate software, ease of use, other functional features, or intended use (OECD, 2005).

Wang and Ahmed (2004) product innovation is new products brought to market at the right time (Acar and Acar, 2012). Product innovation is defined as the innovation realized by changing some features of an existing product or creating a brand-new product by focusing on the customers of business organizations and taking into account their changing needs and demands (Baglieri and Consoli, 2009).

Utterback and Abernathy (1975) stated that in the product development model they put forward and is still used today, product innovation is a type of innovation that focuses primarily on increasing product performance, then increasing product variety, and finally on production costs and standardization of the product (Taşgit and Demirel, 2016).

Minor changes in design are not product innovations. Product innovation takes advantage of new knowledge or technology. Hernard and Szymanski (2001) argued that products and services should be evaluated together in the concept of product innovation (Acar and Acar, 2012).

In the literature, product innovation has been evaluated by Danneels and Kleinschmidt (2001) from two aspects: (i) From the customer's point of view, innovation characteristics, adoption risks, and levels of change in established behavioral patterns (ii) From the firm's point of view, environmental familiarity, project-firm fit, and technological and marketing aspects (Wang and Ahmed, 2004). Product innovation is the originality or uniqueness of products.

Customers and competitors should be considered in product innovation. Regardless of the industry, the focus of all business organizations is customer needs. Andrews and Smith (1996) see the suitability or usefulness of a new product as an important feature of product innovation for some consumers (Acar and Acar, 2012).

For this reason, in order for product innovation to be successful, business organizations must be customer-oriented and follow the changing needs and expectations of customers. On the other hand, product innovation has a critical detail. These are the negative effects of being competitor oriented. Because competitor-oriented product innovation policies include the risk of producing counterfeit products (Lukas and Ferrell, 2000).

In the product innovation process, the thought worlds and organizational routines of the employees are of great importance. Each employee interprets technology and market information from different perspectives. Therefore, product innovation workers as a whole must be actively involved in product design and challenge each other. Otherwise, the final product will not be in the desired shape. Another point to note is that the product innovation process is not simply managing an R&D project and team, but a more collective mechanism. For this purpose, it is essential to develop processes that will enable employees with different worlds of thought to work in harmony and collectively (Dougherty, 1992).

Product innovation is of vital importance for business organizations whose ultimate goal is to produce products that meet customer needs and expectations in the most effective way and to profit from their sale. In order to be one step ahead of other business organizations under intense competition conditions, it is necessary to show the necessary

sensitivity to product innovation. Product innovation is more prominent than other types of innovation, since the renewal of the capabilities that give strength in the fight against competitors is an indispensable element for all business organizations operating in dynamic environments and the product is one of the most important components that provide this competitive power (Danneels, 2002).

3.2.1.2. Process Innovation

Process innovation is defined as the introduction of new production methods, management approaches and new technology used to improve production and management processes. Therefore, process innovation means being innovative at every step necessary in the creation and development of the product (OECD, 2005).

Process innovation has not been clarified in the literature. In most studies, process innovation is considered a sub-element of technological innovation. For example, Kitchell (1997) considers that technological innovation proceeds best in light of the nature and process of innovation adoption.

Avlonitis et al. (1994), technological innovation challenges related to machinery and production methods are measures of this innovation. Technological innovation may be embedded in product innovation embodying unique new technological content. Or, technological innovation is embedded in process innovation using new equipment (Wang and Ahmed, 2004).

From this perspective, process innovation is expressed as changes in the technology used by all or a unit of the organization and which are new for the industry (Bigoness and Perreault, 1981).

The structure of organizational dynamics underlying the process innovation of commercial organizations is complex and diverse (Zmud, 1984). That is, the implementation of such innovation involves significant improvements in technique, equipment or software. The scope of process innovation is quite wide and how difficult and misleading it can be due to the possibility of conflict (Acar and Acar, 2012).

Process innovation is the steps that increase the effectiveness and efficiency of the organizational steps to bring the product to market. Process innovation is achieved through innovations in the technological, technical, administrative or organizational social systems of enterprises (Damanpour et al., 2009).

3.2.1.3. Organizational Innovation

Organizational innovation is defined as the implementation of an idea or behavior that is new to the organization (Hage, 1980). According to another definition, organizational innovation is a kind of process innovation that does not contain technical elements (Armbruster et al., 2008).

Organizational innovation is the improvement of any business process other than actual production. For example, implementing innovative approaches to organizational guidelines or updating supply chain processes is within the scope of this type of innovation. Companies implement such innovations to ensure efficiency in their ongoing business processes (Okatan, 2017).

For organizational innovation that is consistently mixed with process innovation, OECD and Eurostat (2005) recommend paying attention to: (1) process innovation is the creation of a new or significantly modified production and/or supply management that increases the efficiency of the business organization; (2) organizational innovation, on the other hand, is the introduction of a new or significantly changed method in the relations of the business organization with its surrounding elements and/or in the way of doing business within the organization.

Organizational innovation emerges as an element that increases its importance over time. While activity has been the most important issue for businesses since the 1960s, the concept of quality has become the focus in the 70s. Since the 1980s, the ability to establish a flexible organizational structure has come to the fore. Starting from the beginning of the 90s, with the increasing effect of globalization, businesses had to focus on innovative products that could not be imitated by their competitors. This necessity compelled businesses to focus more on organizational innovation (Burmaoğlu and Şeşen, 2011).

3.2.1.4. Marketing Innovation

Marketing innovation involves major changes in product pricing, positioning, design or product packaging (OECD, 2005). Market innovation aims to improve target customer needs and create and manage new markets (Acar and Acar, 2012).

Ali et al. (1995) considers innovation as a market-based structure. Market innovation is associated with product innovation and is often studied as product-market innovation (Wang and Ahmed, 2004).

Marketing innovation refers to the design, positioning, promotion and pricing of products to increase customer acceptance (Penning and Kim, 2009; Coşkun et al., 2013). That is, it is expressed as the innovation in the marketing mix of products (Demirel, 2020).

Market innovation is new marketing programs adopted by companies to enter and take advantage of the targeted market (Wang and Ahmed, 2004). Marketing innovation is mostly related to pricing strategies, product packaging design features, product placement and promotion activities (Acar and Acar, 2012). Product innovation maintains the central focus of product innovation, while market innovation emphasizes the innovation of market-oriented approaches. Product and market innovation are inevitably intertwined (Wang and Ahmed, 2004).

3.2.1.5. Behavioural Innovation

Behavioral innovation can be studied at three levels: individuals, teams, and management. Individual innovativeness can be thought of as a willingness to change and a basic personality structure (Hurt et al., 1977). Team innovation is the team's ability to adapt to change (Lovelace et al., 2001). It is not just the sum of innovative individuals, but a synergy based on group dynamics. Managerial innovation demonstrates management's willingness to change and its determination to promote new ways of doing things (Rainey, 1999).

Behavioral innovation fosters an innovative culture and general acceptance of new ideas and innovations. This innovation supports innovative results. An innovative culture acts as a catalyst for innovation, while its lack hinders innovation (Wang and Ahmed, 2004).

Measuring an organization's behavioral innovativeness cannot be accomplished by examining infrequent innovations or the innovative characteristics of specific small groups in the organization (Avlonitis et al., 1994).

3.2.1.6. Strategic Innovation

Strategic innovation is the reconceptualization of what business is about (Markides, 1998). Strategic innovation identifies gaps in the company's industry positioning. According to Besanko et al. (1996) strategic innovation is the development of new competitive strategies that create value for the firm. This innovation measures an organization's ability to manage ambitious corporate goals and creatively expand limited

resources. In addition, this innovation determines the mismatch between targets and available resources (Wang and Ahmed, 2004).

Innovation strategies are effective for organizations to reach initiatives that will provide the highest performance with limited resources (Fathali, 2016). Innovative activities need to support corporate strategies. Various strategic steps should be taken to bring together different innovation activities. In other words, innovative ideas need to be included in the strategic decision-making process in order to develop better innovation management (Wan et al., 2010).

On the other hand, innovation processes and strategies are intertwined. These two concepts indicate whether innovations are part of business planning and thinking or whether they occur unintentionally. Innovation processes provide a transparent and organized system within an organization. In turn, the innovation strategy draws guidelines and a strategic framework for the systematic development of innovation. Thus, productivity increases for desired innovation results (Mihic et al., 2015).

Strategic innovation is not a component factor of organizational innovativeness, according to most of the authors. For example, according to Miller and Friesen (1983), key managers' risk taking to seize and explore incidental growth opportunities is an important criterion of organizational innovativeness. According to Capon et al. (1992), a company's propensity to be a strategic pioneer is a dimension of organizational innovativeness. Avlonitis et al. (1994) examines the strategic innovation intentions that emerge in measuring organizational innovativeness (Wang and Ahmed, 2004).

Strategic innovation in many organizations faces many obstacles. The two most important factors of this are; The fact that companies do not have the ability to manage change and managers are afraid of taking risks due to the uncertainty of change (Markides, 1998).

3.2.2. Innovation According to Density

Innovation according to density is divided into 2 different sub categories

3.2.2.1. Radical Innovation

Radical innovation is defined as innovation using new technologies that lead to the creation of a new market (O'Connor, 1998; Song and Montoya-Weiss, 1998). Radical innovation occurs when some breakthroughs occur (Okatan, 2017). However, this

innovation is the type of innovation that causes disruptions both in the world and in the industry and at the business and customer level. Because what is new in the world and in the industry (at the macro level) is also new directly for the business and the customer (at the micro level) (Garcia and Calantone, 2002).

Since radical innovation is an innovation that takes a long time to develop, it is a factor that brings long-term success to business organizations (Darroch and McNaughton, 2002). Radical innovation and groundbreaking innovation are often referred to as the same terms (Okatan, 2017).

Since radical innovation is the type of innovation in which the new and cutting-edge technology is used in the product range, the knowledge-based perspective forms the essence of this type of innovation. From a knowledge-based perspective, the degree of new product creativity of business organizations is directly related to their ability to create and manage new knowledge. For this reason, business organizations with a knowledge structure in which both internal information sharing exists and external information is received and used are more successful in developing radical innovations (Zhou and Li, 2012).

The development of information technologies has allowed the frequent use of digital ways of doing business. That is, the ability of business organizations to commercialize radical innovation has increased. Information on new technologies, new application and research results, customer experiences and feedback on new products have become easily accessible over the internet. This development has also prompted business organizations to act more quickly to develop and implement new ideas. Customers began to demand radical new ideas more often. However, it does not seem possible for business organizations to realize radical innovations in response to these demands. Because the employees who can implement radical innovation in many businesses lack organizational culture and leadership practices (Stringer, 2000).

Radical Innovation has a huge impact on the industry.

This innovation has a negative impact on companies that do not adapt to industry conditions. This innovation cannot be achieved with traditional management practices. This innovation requires a unique management and cultural atmosphere (Johansson and Jönsson, 2014).

Radical innovation is an important issue not only for business organizations but also for countries. As a result of radical innovation, some markets merge, new markets emerge or some existing market opportunities disappear. Small business organizations can become very large business organizations through radical innovation, and the country's economy can get on the track of growth. Since radical innovation is so important, it is inevitable that a country's culture will affect the radical innovation process and success of business organizations. As a matter of fact, macro factors such as having a culture that encourages innovation, management, workforce qualifications and capital situation affect the radical innovation skills of business organizations (Tellis et al., 2009).

Customers should never be ignored while implementing radical innovations that provide business organizations with competitive power against their competitors. Customers who are open to new technologies and motivated to participate in the innovation process go beyond ordinary customers included in marketing research and contribute to the success of business organizations' radical innovation development processes (Lettl et al., 2006).

3.2.2.2. Incremental Innovation

Incremental innovation is defined as making new arrangements, additions and improvements to an existing product in an existing market. Innovations to be made in the "maturity" phase of the life cycle of the products are within the scope of incremental innovation. On the basis of incremental innovation, it is also defined as the innovations and improvements realized in products gradually. All innovations are included in the incremental innovation class, except for products that do not cause serious changes in customers' purchasing behavior and approach to products, are not significantly changed or are not completely renewed (Esmer and Alan, 2019).

Incremental innovation is a type of innovation that gradually increases the performance and efficiency of a product, process or system (Okatan, 2020). Companies can apply one or more different types of innovation to be successful (Kirner et al., 2009). The improvements are usually quite minor; development is based on traditional management practices. Therefore, innovations of this intensity do not cause disruptions at the macro level (Garcia and Calantone, 2002).

This innovation has two more levels: modular innovation and architectural innovation (Okatan, 2017).

All of these innovations are interrelated. Product and market innovation are externally focused, market-based, and intertwined. Every product produced must be presented to customer service in the right market at the right time. Whereas, behavioral and process innovation is both internally focused and underlines the need for product and market innovation. It paves the way for a more accurate assessment of market needs. Strategic innovation emphasizes the organization's ability to timely identify external opportunities and match external opportunities with internal capabilities to offer innovative products, explore new markets. In order for innovations to be sustainable, strategic decision-making mechanisms must be included in the processes. In this respect, product and market innovation must include process, behavioral and strategic innovation. Together, these five aspects are indicators of an organization's overall innovation (Wang and Ahmed, 2004).

3.3. MEASURING OF INNOVATION

The more a company can transform inputs into current output values, the more innovative it is considered.

Researchers and consultants use different methodologies and tools to measure corporate innovation. A company's innovation measurement system is reflected in all business processes of the organization and creates much better management opportunities. Therefore, it is important to measure the innovation of the company (Borocki et al., 2013).

Twenty years ago, management guru Tom Peters summarized in her article *What Measures Is Done*, excellent firms use metrics and benchmarks that make the most valuable use of time (Peters, 1982).

Measuring innovation is important for two reasons: First, metrics help managers make informed decisions based on objective data. This is invaluable given the long-term nature and risk of innovation projects. Second, metrics influence behavior that helps align goals and actions with the company's interests (Hauser and Zettelmeyer, 1996).

Table 3.2. Evolution Of Innovation Metrics By Generation

1 st Generation Input Indicators (1950s-60s)	2 st Generation Output Indicators (1970s-80s)	3 st Generation Innovation Indicators (1990s)	4 st Generation Process Indicators (2000+emerging focus)
• R&D expenditures • S&T Personnel • Capital • Tech intensity	• Patents • Publications • Products • Quality • Change	• Innovation surveys • Indexing • Benchmarking innovation • Capaticy	• Knowledge • Intangibles • Networks • Demand • Clusters • Management techniques • Risk/Return • System Dynamics

(Source: Milbergs and Vonortas, 2005)

Here are some examples of different measurement frameworks and models for measuring innovation (Gamal et al., 2011):

The diamond model: The strategy, process and linkages of the organization with other relevant stakeholders and learning.

Innovation fuel: Shows how innovation goals, actions, teams, and innovation outcomes interact with each other to create change in any organization.

Innovation value chain: The model presents innovation as a sequential, three-stage process involving idea generation and dissemination of developed concepts.

The OSLO Manual Innovation Measurement Framework represents the integration of insights from various firm-based innovation theories with approaches that view innovation as a system (Borocki et al., 2013).

Gamal et al. (2011) presented an inventory of measurement and evaluation approaches related to innovation. Gamal has categorized the literature on innovation metrics used for measurement in four generations (Okatan, 2017).

First generation methods included an innovative linear notion focusing on inputs such as research and development investments, education expenditures, capital expenditures, university graduates, technology volume (Gamal et al., 2011).

Second generation methods took into account the intermediate results of science and technology activities; Patents, scientific publications, product launches and processes, high-tech input indicators (Gamal et al., 2011).

The third generation focused on open data surveys and numerous innovation indicators and their integration indices. The primary focus was to compare and rank the innovation capacity of a single country.

Fourth-generation metrics are currently at an immature stage, which includes information indicators, networks, and innovation conditions. (Gamal et al., 2011).

There are methodologies defined in this area: Community Innovation Survey (CIS) developed by the Statistical Office of the European Communities (Eurostat), Global Innovation Index (GII) developed by INSEAD in 2007, innovation union scoreboard conducted by the Gallup Organization under the European Commission Lisbon strategy, or Innobarometer (Vidicki et al., 2011), (Borocki et al., al., 2013).

To innovate successfully, organizations must recognize that risk-taking is valuable. It should motivate its employees about risk and create appropriate environments. However, companies predominantly choose to lead innovations rather than innovate. Therefore, there is a need for structured processes to guide the development of ideas, as well as systems that create appropriate measurement, motivation, incentives and rewards (Davila et al., 2007).

3.4. INNOVATIVENESS

Innovativeness is a measure of the degree of innovation (Wang and Ahmed, 2004). Often the terms innovativeness and innovation orientation (Siguaw et al., 2006) are used interchangeably. There is a general consensus in the literature that innovativeness is not synonymous with innovation, but rather is a pioneer of innovation and represents a firm's ability to innovate (Hult et al., 2004).

Accordingly, innovation is the product of an organization's strategic and competitive orientation. This thinking provides a vivid mental vision of a state of input (innovativeness) and output (innovativeness) (Manu, 1992).

In other words, unlike innovation, innovativeness is not an end but a means to an end. This is the distinguishing feature that catches the important difference between innovation and innovativeness (Mengüç and Auch, 2006).

Hurley et al. (2005), Innovativeness is a part of organizational culture and capacity to innovate is a result of innovation. This capacity can be measured by the number of innovations an organization has successfully adopted or developed. Therefore,

innovativeness is not combined with specific product innovations. Rather, it reflects a cultural characteristic of the organization and its willingness to pursue new opportunities (Ruvio et al., 2013).

In the context of marketing research, innovativeness is the dynamic capabilities required to initiate and develop new ideas, products or technologies. In other words, innovativeness has been named as the ease with which an organization adopts a new innovation (Becker and Whistler, 1967).

Howard and Hansen (2004) distinguish between innovation and innovativeness as a process. While innovation is typically a result-oriented measure such as new product success (Ayers et al., 1997), innovativeness captures the drive towards innovation at the firm level (Hurley and Hult, 1998). In other words, innovativeness measures an organization's propensity to engage in innovative behavior (Van de Vrande et al., 2009).

Empirical studies on innovativeness point to different results. Cooper (1999) thinks that we still do not know what distinguishes the successful functioning of one organization from the functioning of another (Borocki et al., 2013).

Different types of innovation and different aspects of innovativeness represent significant differences in the characteristics of an innovative organisation. The literature analysis shows that different authors focus on different aspects and characteristics when describing innovative organizations. According to Darroch (2005), an innovative organization is also a sensitive organization. The author states that innovation is an answer in itself. Therefore, the more responsive and agile an organization is, the more likely it is to be innovative.

According to Pemberton and Stonehouse (2004), innovative organizations are typically knowledge-centered. These organizations use information assets in various ways to improve corporate and individual performance. In addition, it has been researched in the literature that a firm's activities are related to high technology and knowledge-intensive services as firms constantly try to innovate (Cantner et al., 2008).

When managers aim to make a change, they should prepare the necessary infrastructure and provide adequate support in the organizational culture (Borocki et al., 2013).

Innovativeness is conceptualized as a mixture of three different components. These are (1) antecedents, (2) dimensions, and (3) outcomes. Although at first glance it may seem

that there is no consensus in the literature, dimensions, premises, and conclusions have underlying commonalities in these varying conceptualizations (Walsh et al., 2009).

The conceptual framework in Figure 3.1 shows that innovation is conceptualized as a mixture of three different components. This is intended to clear up the current confusion prevailing in the framework literature: premises, dimensions, and conclusions. Furthermore, the conceptual framework draws distinctions between innovation and innovativeness: where innovation is portrayed as the tangible or physical result of an organizational mindset and capabilities (new product-service-production method). Innovativeness is shaped by antecedents (innovation orientation). For example, the framework does not take into account the impact of potential regulatory factors on the relationship between facilities and firm-level innovation (e.g. organization and type of innovation, scope of innovation and stage of innovation adoption) (Walsh et al., 2009).

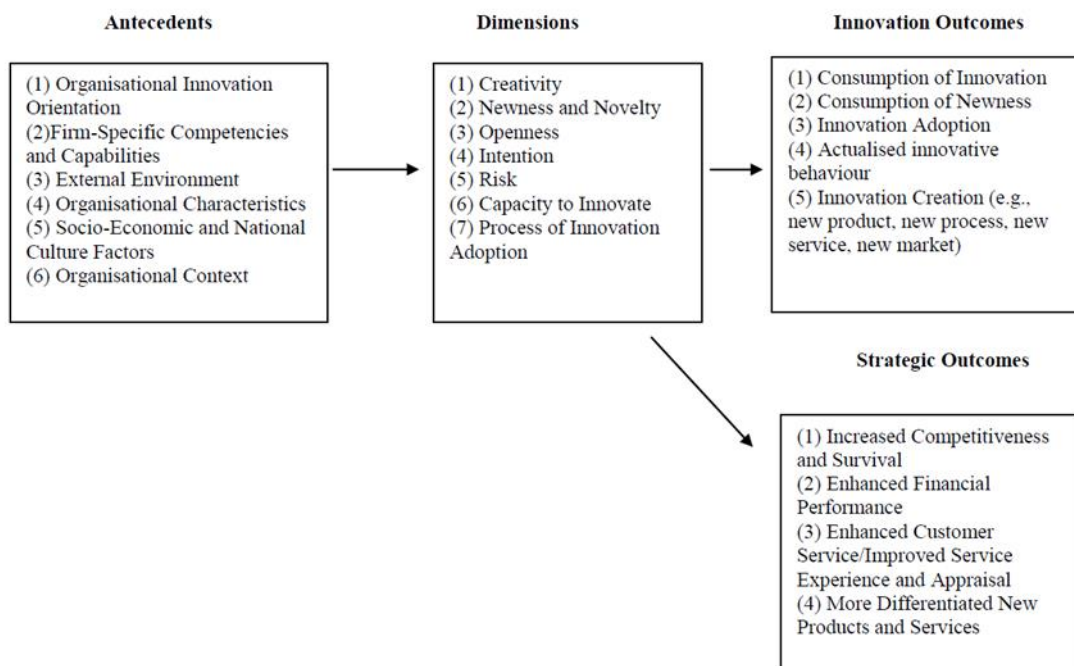


Figure 3.1. Innovativeness: A Conceptual Framework - Antecedents, Dimensions, and Outcomes (Walsh et al., 2009).

3.5. TYPES OF INNOVATIVENESS

Looking at the innovativeness literature, there are two types of innovativeness: firm innovativeness and product innovativeness.

3.5.1. Firm Innovativeness

Firm-level innovativeness refers to the firm's total innovative capabilities. From such a perspective, the determinants of firm-level innovativeness are: organizational culture, intellectual capital, firm strategies, etc. The two most important determinants of innovativeness are intellectual capital and organizational environment. Organizational environment consists of organizational structure and organizational culture (Ulusoy et al., 2015).

Firm innovativeness is expressed as the ability and tendency of businesses to perceive new ideas to develop new products (Rubera and Kırca, 2012). Innovativeness covers a wide spectrum, from small changes applied to the existing products and processes of the business organization to the introduction of products that change the rules of the market and incorporate the latest technological developments (Dibrell et al., 2011).

Firm innovativeness is one of the most important elements of the business organization that positively affects both market performance and financial performance. Rubera and Kırca (2012), in their comprehensive meta-analysis study, showed that innovativeness increases the market value of the business organization, while also providing significant increases in revenues and market shares (Demirel, 2020).

A firm is considered more innovative if it adopts an innovation earlier than its competitors in the industry. In other words, the adoption time of an innovation is a determining factor for innovation. This logic is based on the assumption that a new product or process represents an innovation for the organization adopted. Here, the measure of innovation is the number of innovations (Subramanian and Nilakanta, 1996).

Like the concept of innovation, the innovativeness of the firm can be characterized according to different aspects. Firms are considered heterogeneous in their resources, structures, and focus on the need and use of knowledge. They differ in the knowledge intensity of production and hence their dependence on knowledge (Cantner et al., 2008).

Based on this, Salavou (2004) states that the extent of innovativeness on its own is not adequately defined. Because an organization may be innovative in some areas but not in others. The author argues that innovativeness can be related to technology (where innovativeness is the company's tendency to adopt new technologies) and behavioral (where innovativeness is considered the ability to generate new ideas) (Sajeva and Jucevicius, 2008).

It is thought to be a common result of factors such as organizational environment, intellectual capital, firm characteristics, firm strategies and external conditions. As the determinants of this innovativeness model, it is presented in a model with all its sub-elements (Figure 3.2). (Ulusoy et al., 2015). Determinants of the innovativeness model for the firm:

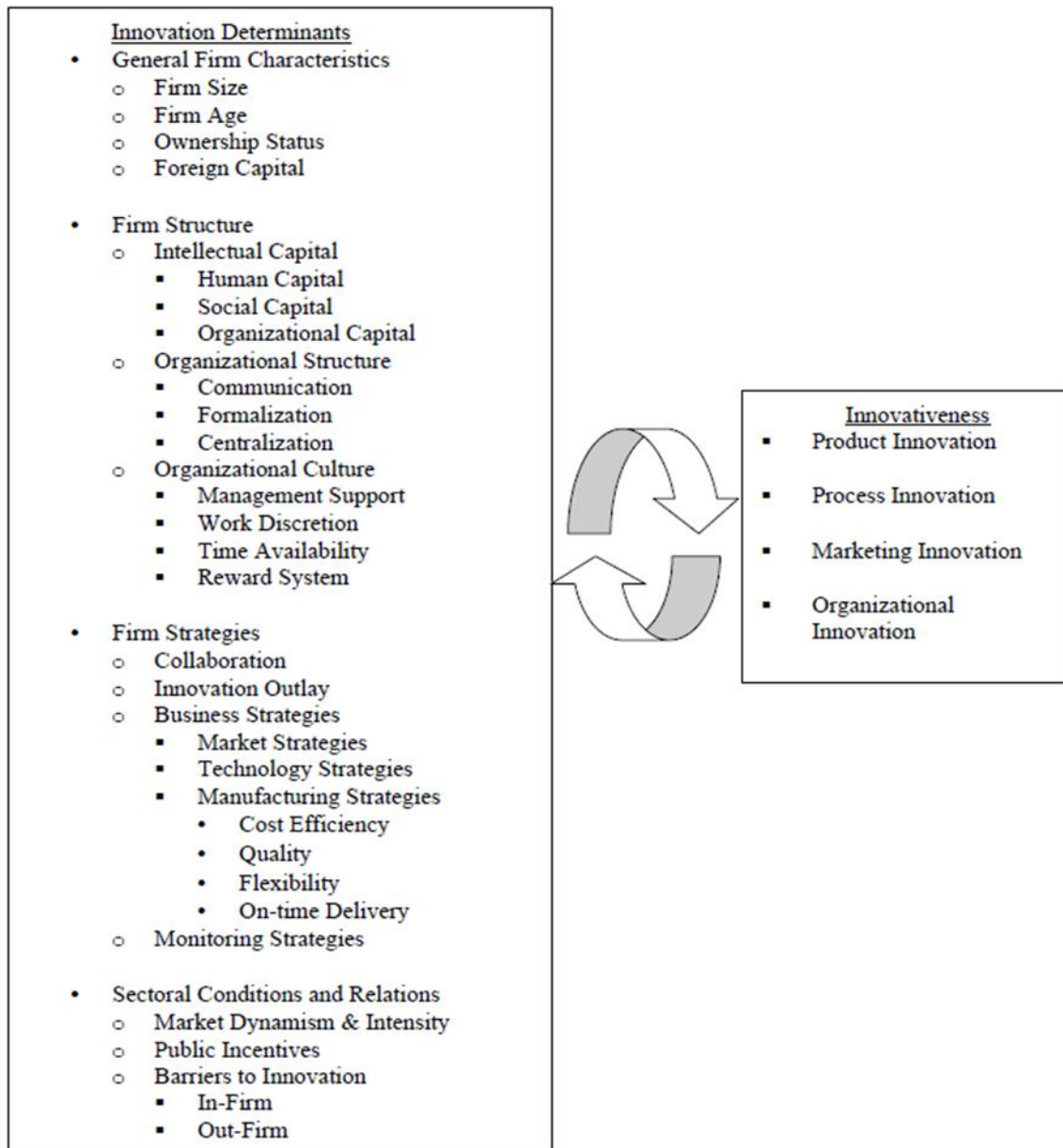


Figure 3.2. Determinants of The Innovativeness Model (Ulusoy et al., 2015).

The positive effect of innovativeness on the performance of the business organization is based on the views of Schumpeter (1942). Accordingly, business organizations become

semi-monopoly businesses if they innovate, and such a market captures a significant portion of the existing producer surplus. This rent, which is expressed as supernormal rent, can disappear when competitors imitate the products of the business organization or by making another innovation and eliminating the advantageous position of the business organization. Therefore, business organizations have to constantly innovate and ensure that this innovation shows high performance in order to regain the economic rent in the market (Rubera and Kirca, 2012).

Souitaris examines the innovative capabilities of firms while classifying them according to their business strategy. According to this; Firms with specialized suppliers and more research in R&D are more innovative. That is, different variables have proven to be significantly related to innovativeness; For example, for supplier-dominated firms, innovative capability relates to competitive environment, knowledge acquisition, technology strategy, risk attitude, and internal coordination. Science-based firms are more associated with panel discussions with leading customers on technology-related variables, staff training and experience, growth in profitability, and innovativeness capabilities (Ulusoy et al., 2015).

3.5.2. Product Innovativeness

Innovations are important economic growth incentives that affect an organization's performance. As many researchers have emphasized, for years, attention has focused mainly on product or technological innovations (Birkinshaw et al., 2008; Damanpour and Aravind, 2011).

Product innovativeness offers new entrants the opportunity to gain a foothold in the market (Danneels and Kleinschmidt, 2001). This innovativeness is defined as the novelty and relevance of new products introduced to the market on time (Wang and Ahmed, 2004).

There are two different perspectives on product innovativeness. From the macro (industry) point of view, the capacity of the product launched to create a breakthrough in terms of innovation and the technologies used. From a micro (business) perspective, innovativeness is the business organization's capacity to influence its existing marketing and technological resources, knowledge, capabilities or strategies (Garcia and Calantone, 2002).

Similar to this distinction, Danneels and Kleinschmidt (2001) examined product innovativeness from the perspective of business organization and customer. According to the authors, product innovativeness, familiarity with the marketing and technological environment, and adaptation to technological and marketing resources are at the forefront in terms of business organization. However, the features of the product and the elements required for behavioral change are important for the customer (Danneels and Kleinschmidt, 2001).

The issue of how new product development process is carried out also has an impact on the product innovativeness of commercial organizations. For example, Lau et al. (2011), product innovativeness increases when the new product development process is carried out with a modular method. However, changes made to a module during development do not affect other phases of the process. Thus, in total, product innovativeness is positively affected. However, if this modularization is overly complex, it has a negative impact on product innovativeness (Lau et al., 2011).

In business organizations, the new product development process is mostly carried out through teams established for this purpose. As such, the characteristics of these teams will affect product innovativeness. Accordingly, Sethi et al. (2001), these teams should be encouraged to take risks and the product development projects of the teams should be closely followed by the senior management (Demirel, 2020).

In product innovativeness, products with macro-level innovation provide significant benefits in increasing the share in foreign markets, creating new market opportunities, and reaching sales and profitability targets. Similarly, innovations with a low level of innovation, in other words, including cost reduction, revision and modification, are innovations that are beneficial for business organizations to increase their share, especially in local markets (Kleinschmidt and Cooper, 1991). Product innovativeness in KOBIs with a high entrepreneurial tendency enables business organizations to be more successful in producing products that differ significantly from competing products (Avlonitis and Salavou, 2007). Additionally, in order for the information obtained from customers in KOBIs to be transformed into innovation in the desired way, the product innovativeness of these business organizations must be high (Verhees and Meulenber, 2004).

3.6. FACTORS AFFECTING INNOVATIVENESS

Rogers (2003) defined innovativeness as the degree to which an individual or unit adopts new ideas relatively earlier than other members of the system. In other words, an innovative firm is one that adopts innovations more quickly. The more innovations a firm adopts, the more innovative it becomes (Siddiquee et al., 2015).

Urban and Hauser (1993) argue that innovativeness is a highly risky endeavor that requires large financial and human resources. The synchronization of innovativeness capacity building, strategy options, processes and innovation models contributes significantly to reducing the risk of investment in innovation. To fully develop this potential, it is essential to constantly update and develop the innovativeness system based on innovative employees, procedures, processes, organization, culture and innovation strategy (Mihic et al., 2015). In this respect, innovativeness as a process concerns the entire business organization. For this reason, it is inevitable that some elements of business organizations affect innovation.

The adoption of innovativeness activates an organization and provides better performance (Subramanian and Nilakanta, 1996). According to this:

- a. Innovativeness adoption is the institutional response to changes in the external environment. To be successful, institutions must adapt to changing environmental conditions (Lawrence and Lorsch, 1982).
- b. The adoption of innovativeness by an organization is the result of strategic initiatives proactively pursued by decision makers in the organization (Child, 1972).
- c. Adoption of innovations is desirable (Dos Santos and Pfeffers, 1995).
- d. Innovative organizations have identifiable organizational characteristics that distinguish them from their non-innovative counterparts (Damanpour, 1987; Subramanian and Nilakanta, 1996).

Business organizations receive information from different elements in their environment through organizational learning. In addition, they grasp how to develop and transform existing technology to achieve organizational goals and provide competitive advantage. In this respect, organizational learning is an important concept that affects innovation in business organizations (Demirel and Kubba, 2014).

The fact that business organizations are learning-oriented positively affects their innovativeness levels. The learning-oriented business organization is more open to

understanding what is going on in their environment (customers, competitors, technology, etc.). In this way, new ideas are put forward through the learning process by using the elements in the environment and new products are implemented (Calantone et al., 2002).

If business organizations are learning-oriented, their innovativeness levels increase, and thus, business organization performances increase. In other words, it plays a mediating role between innovativeness, learning orientation and business organization performance (Hult et al., 2004).

One of the important components of the effect of learning orientation on the innovativeness of business organizations is market orientation. Business organizations that come into contact with their customers in the market, reviewing their processes and products according to the information obtained from them, have a common belief for a common learning, critical evaluation of the operational processes of the business organization, adopting new ideas, beliefs and processes, and promoting learning among different units of the business organization. and will become business organizations that succeed in developing routines (Keskin, 2006).

3.7. DETERMINANTS AND ANTECEDENTS OF INNOVATIVENESS

The determinants of innovativeness are divided into two groups as internal (domestic) and external determinants. Internal determinants: Domestic determinants include general firm characteristics, firm structure (intellectual capital, organizational structure, organizational culture), and firm strategies. External determinants are industrial conditions and relationships. Empirical studies reveal that external relations have uncertain effects on innovativeness (Ulusoy et al., 2015).

Accordingly, the determinants of innovativeness can be listed under the following headings:

3.7.1. Intellectual Capital

Intellectual capital, that is, includes all kinds of intangible assets, knowledge, abilities and relationships. It is divided into three subgroups: (1) human, (2) social, and (3) organizational capital (Joia, 2000; Dakhli and De Clercq, 2004).

Human capital is the sum of knowledge and skills that can be developed by an organization's employees, especially through education and work experience (Joia, 2000; Dakhli and De Clercq, 2004).

Social capital is the information provided and used by individuals and their interrelationship networks (Nahapiet and Ghoshal, 1998).

Organizational capital is the institutionalized knowledge and coded experience contained within and used through databases, patents, guidelines, structures, systems and processes (Youndt et al., 2004).

In all dimensions of intellectual capital, there is a knowledge-intensive organizational resource that fosters innovation. Subramaniam and Youndt (2005), intellectual capital selectively influences increased and radically innovative capabilities. Organizational and social capital, positively affects innovativeness ability. Human capital is negatively associated with radical innovative capabilities. Surprisingly, social capital plays a notable role in both types of innovation, as it positively influences both incremental and radical innovations (Ulusoy et al., 2015).

3.7.2. Firm Strategies

Innovativeness itself is a broad concept. It can be defined as new information incorporated into products, processes and services (Afuah, 1998; cited by Popadiuk and Choo, 2006). Experimentation, development or improvement (a new product, service, technology, etc.), ie innovation made by a business for the business or to a customer (Carnegie and Butlin, 1993; quoting Gloet and Terziovski, 2004); or a learning and knowledge creation process in which new problems are identified and new knowledge is developed and thus resolved (Lam, 2005).

According to Booz Allen Hamilton innovation typology (1982; as cited in Darroch, 2005), innovations can be categorized as new products, additions to existing product lines, improvements, revisions or repositioning of product lines, costs for the world and the firm (Sajeva and Jucevicius, 2008). From all these contexts, firm strategies for innovation should be carefully considered.

If a firm is to be adequately described, it is appropriate to focus on three closely related characteristics: its strategy, structure, and core capabilities. These attributes define the stable firm character. Each of them has a certain machinability. But major changes to the last two have significant costs. The concept of strategy in firm theory refers to a set of

broad commitments that define and rationalize a firm's goals and how it seeks to pursue them. Some of them can be written, some are not. However, it is in the company's management culture. First, the commitments embodied in a strategy are as numeric as the belief of senior management and company tradition. Second, firm strategies rarely specify the details of firm actions. But often it outlines the widest lines. Third, and most importantly, these commitments are actually optimal (Nelson, 1991).

Also, Loch et al. (1996), firms' internal and external growth strategies are significantly reflected in their innovative performance. All organizations should pursue efficiency-enhancing activities (Ulusoy et al., 2015).

In established companies, one or more groups should be responsible for innovation. The reasons for this are: (i) corporate talent development is not easy, especially when faced with processes that focus on operational efficiency; (ii) accumulation of experience requires consistency and continuity of those concerned; (iii) the existence of a group responsible for the emergence of innovation motivates the entire company to consider the actual progress of these activities and possible restructurings necessary to develop them; (iv) appropriate skills need to be developed to innovate radically (Bagno et al., 2017).

A change in strategy in the firm may require a change in management. Changing the official organizational chart is easy. Sales and purchases may also be possible. But changing the way a firm makes and implements business-level decisions is time consuming and costly. In other words, it is a big job for a new structure to be settled and run smoothly. The reason for changing the build is to set it up for the better. This brings the discussion to the concept of core competencies. Strategy and structure reveal and shape organizational capabilities. However, every organization has its own life that it can do well (Nelson, 1991).

Research shows that incremental and radical innovations often occur in companies that are sensitive to technology and knowledge about changes in the market. Radical innovations are expected from technologically oriented companies. According to research, technological trends enable firms to develop innovations that change consumer behavior without destroying job competence (Ulusoy et al., 2015).

Diversification, differentiation and cost reduction strategies are also relevant determinants of innovation discussed in the literature (Motwani et al., 1999; Ahuja and

Katila, 2001). Galende and De la Fuente (2003) observe that the differentiation technique definitely has a positive impact on a company's innovative capacity.

3.7.3. Sectoral Conditions and Relationships

The structure and strategies of successful companies are also in a positive relationship with their environment. Companies always have to strictly follow the sectoral conditions and the environment. Companies must observe their external environment to develop a deep-rooted culture of innovativeness. Companies should not ignore that they are always under the control of changes in the environment (Ulusoy et al., 2015).

Keizer et al. (2002), innovation is the result of a consciously chosen and followed policy. Government and/or sectoral organizations should motivate companies to be innovative and maintain it. It should encourage employees to follow an innovation-oriented policy. Without such a policy, companies may not be able to grasp the successfully implemented measures (Ulusoy et al., 2015).

Regular consultation with customers, market research, monitoring of competitors' products and processes are also indicators of high innovation. Communication with raw material suppliers is an important source of technical information. In addition, Souitaris (2002) states that companies should be motivated to develop international links, collaborate and obtain licenses to be more innovative. Kappel et al. (1999), alliances are very useful tools to reduce innovation risks and to establish permanent market positions in unstable environments (Ulusoy et al., 2015).

The antecedents of an innovative organization can be listed as follows according to the characteristics presented (Sajeva and Jucevicius, 2008):

(1) Invention and knowledge creation activities are important characteristics of the innovative organization (Carneiro, 2000).

(2) Innovative organization values learning. Organizational learning is critical to successful innovative organization. Knowledge is a necessary condition for production. Without it, the organization is doomed to repeat mistakes while at the same time wasting valuable time and money on paths that have already been explored and abandoned (APQC, 2003).

(3) The innovative organization supports creative individuals and provides conditions for them to share and create knowledge. Insight and innovative ideas come to individuals rather than organizations (Sajeva and Jucevicius, 2008).

(4) The innovative organization is flexible to change, efficient in generating innovations and intelligent in predicting the market situation. One of the key features of the innovative organization is its ability to change and adapt to large intermittent technological and environmental changes. Innovative organizations must be skilled at creating, acquiring and using knowledge creatively, but also changing their behavior to reflect these new knowledge and insights (Sajeva and Jucevicius, 2008).

Thus, at least four main aspects of innovative organization are distinguished. First of all, innovative organizations are defined by their ability to create and adopt a new idea or behavior for the organization. Invention and knowledge creation activities are particularly highlighted. Second, the vital role of organizational learning in innovative organizations is explained. Third, the importance of the environment that supports innovation processes in the organization is emphasized (Sajeva and Jucevicius, 2008).

3.8. FIVE- DIMENSIONAL CONCEPTUALIZATION OF ORGANIZATIONAL INNOVATIVENESS (OI)

The area of strategic management is identifying performance differences between companies competing in the product/service market. Innovativeness is one of the most important capabilities to differentiate products, services, procedures and our business in general to achieve superior performance. Therefore, innovativeness is an indispensable concept for institutions (Acar and Acar, 2012). In general terms, organizational innovation is the creation or adoption of a new idea or behavior (Daft 1978; Damanpour and Evan 1984; Damanpour, 1996). Therefore, organizational innovativeness (OI) is a central topic for research in public administration, marketing, management and political science (Shoham et al., 2012).

The term innovation can be defined as the establishment of new or significantly improved products (goods or services) or processes or new marketing methods, organizational practices, business organization and external relations (OECD, 2005).

While the term innovation is more often associated with results (Sawang and Unsworth, 2011; Autant- Bernard et al., 2010), the term organizational innovativeness (OI) is used in connection with the organizational conditions that enable innovation to take place (Bornay-Barrachina et al., 2012; Cepeda-Carrion et al., 2012; Dotzel et al., 2013).

OI is organizational capacity or the tendency to introduce innovations. Rubera and Kirca (2012) define this as openness to new ideas that leads to the development and launch of new products. Brockman et al. (2012) emphasize it as the ability to break established procedures and thus facilitate the generation of innovative ideas, experiments and creativity that will lead to the development of new products and technologies (Quandt et al., 2017).

Organizational innovativeness (OI) is a desirable aspect of organizations in contemporary literature and has been extensively studied in many disciplines. Studies have mostly focused on OI's relationships with strategic, market, and entrepreneurial orientations (EOs), organizational learning, performance, leadership, and other outcomes (Garcia and Calantone, 2002; Beimborn et al., 2010; Wang and Ahmed, 2004; Ruvio et al., 2013).

Most innovation and innovativeness researchers now define innovation as the implementation of meaningful changes in an organization that improve not only products/services and technological or administrative processes, but also business procedures, programs and models that create new value (Timmerman, 2009). Organizational innovativeness in general is non-technological innovation and management innovation is more discussed (Garcia and Calantone, 2002; Mothe and Thi, 2010; Krasnicka et al., 2016).

Organizational design theories focus on the link between structural forms and an organization's propensity to innovate (Burns and Stalker 1961; Lawrence and Lorsch 1967; Mintzberg 1979). The aim here is to determine the structural characteristics of an innovative organization and the effects of structural variables on product and process innovation. This literature is the most influential and best integrated into the technological innovation literature (eg Teece, 1998).

Organizational cognition and learning theories focus on the micro-level process of how organizations develop new ideas for problem solving. This theory emphasizes the cognitive bases of organizational innovativeness (Agyris and Schon 1978; Nonaka 1994; Nonaka and Takeuchi 1995). This research area provides a micro lens for understanding the capacity of organizations to create and use new knowledge necessary for innovative activities.

A third line of research concerns the processes underlying organizational change and adaptation and the creation of new organizational forms (for example, Hannan and Freeman 1977; 1984; Romanellie and Tushman 1994). In this context, innovativeness is the capacity to respond, influence and shape changes in the external environment (Burgelman 1991; Child 1997; Lam, 2004).

The organizational innovativeness structure provides an effective measurement of an organization's innovative capacity. This structure has two important aspects. First, this structure captures the essential elements of innovative capability and thus demonstrates the organization's overall ability to produce innovative results. Second, structure includes its strategic orientation as a key factor in an organization's ability to innovate. This means that the structure evaluates potential innovative capacity and shows a direction for the future. This distinguishes it from existing structures that measure the organization's innovation activities from an existing and static perspective (Wang and Ahmed, 2004).

Operationally, OI is often associated with the number of innovations organizations adopt. OI is conceptualized as a five-dimensional structure (creativity, openness to change-innovation, future orientation, risk taking and proactivity) representing the organizational climate. This organizational climate refers to the organization's ability to continuously generate ideas and innovate over time (Ruvio et al., 2013).

Given its importance, academics are faced with the need to develop integrative OI models. There are still a few gaps that are still being addressed in this regard. First, most previous research conceptualizes OI as one-dimensional. This is a five-dimensional conceptualization of OI that more accurately captures the complexity to be addressed in the study than existing ones. This conceptualization forms the basis of a holistic right model (Damanpour, 1991).

A general organizational innovativeness is the limitation of the five component factors. This provides a comprehensive assessment of an organisation's innovative capacity. There are two advantages to using a comprehensive corporate innovation structure over the structure of a particular innovation dimension: First, organizational innovativeness is represented by specific characteristics such as innovation and can be easily measured in terms of the degree or extent of innovativeness of organizations rather than simply dividing them as innovative (Rothwell and Zegveld, 1982). Second, organizational

innovativeness as a trait can be structured to encompass several key aspects of innovation (Wang and Ahmed, 2004).

Using the literature review as a top-down, deductive approach (Johnson et al., 2011), the five dimensions of OI are: creativity, risk-taking, future orientation, openness to change and innovation, and proactivity (Shoham et al., 2012).

3.8.1. Creativity

Woodman, Sawyer, and Griffin (1993) stated that creativity at the organizational level is the creation of a new product, service, idea, procedure, or process that is valuable and useful in a complex social system. Accordingly, it also shows how this concept can affect all innovation processes. This definition frames creativity as a subset of the broader field of innovation (Amabile, 1997; Bharadwaj and Menon, 2000; Ruvio et al., 2013).

Creativity is perhaps the most important component of successful innovation (Amabile, 1997; Lumpkin and Dess, 1996; Dertouzos, 1999). Gümüşlüoğlu and İlsev (2007), creativity is the generation, conceptualization or development of useful ideas, processes or procedures. Of course, the products that creative ideas will produce and the innovations they will make will be very different. Thinking outside the box is the motto of many creative professionals (Reckhenrich et al., 2009).

Tang (1998), creativity is a prerequisite for innovation. Yusuf (2009) innovativeness acts as a springboard from creative cycles to productive innovations. Feinstein (2006) creativity is adopting new ways of doing things. According to Markides (1998), creativity generates new and distinctive ideas that can lead to new and applicable insights. Wang and Ahmed (2004) creativity is the ability to transcend routine thinking, which involves going beyond the obvious to discover innovation (see Avlonitis et al., 2001; Lynch et al., 2010).

Creativity enables the production of innovations that make a difference in organizational innovation studies (Amabile, 1988, 1996; Zhou, 2003). Likewise, (Hurt et al., 1977) included creativity and authenticity in thought and behavior in consumer innovativeness scales. Steenkamp et al. (1999) provides insight into the relationship between creativity and individual consumer innovativeness (Lynch et al., 2010).

In fact, creativity and innovation are often overlapping constructs (Amabile, 1997). Most innovations partially overlap in the generation and implementation of new ideas (Martins and Terblanche, 2003). That is, while creativity focuses on generating new ideas,

innovation focuses on transforming and applying new ideas into products, technologies or processes (Amabile, 1997).

Ford (2002) associated the future with creativity and innovation in organizational decision making. Concerned about the effectiveness of existing routines, the leaders suggested that longer timeframes, creativity, change and dynamic capabilities be considered when evaluating alternative proposals. A forward-looking perspective enables innovative solutions to problems (Gavetti and Levinthal, 2000).

Some ideas can of course be produced outside and then incorporated into the organisation. Therefore, the concept of creativity includes the adoption of new ideas from outside (Ruvio et al., 2013). Externally or internally nurtured Creativity is an OI dimension and mediates the generation of new ideas or products (Amabile, 1988; Shoham et al., 2012).

3.8.2. Openness to Change and Innovation

Openness to change and innovation includes an organization's willingness to support changes (Wanberg and Banas, 2000; Shoham et al., 2012). This dimension requires individuals to be open to different views and tolerant of ambiguity. It refers to the flexibility and adaptability of organizations in responding to new ideas and changes that require them to use unconventional thinking (Costa and McCrae, 1987; Shoham et al., 2012).

This dimension has been studied at the implicit level: For example, Hurley and Hult (1998) adhere to the concept of openness as an aspect of firm innovation and view it as an important aspect of corporate culture. Menguc and Auch (2006) defined this dimension as a firm's willingness to give up old habits and try untested ideas (Lynch et al., 2010). Taggar (2002) argued and documented a positive relationship between openness to experience (Ruvio et al., 2013).

Similarly, Cotte and Wood (2004) conceptualize it as embracing change and trying new things. These considerations strongly imply that innovativeness requires an institutional mindset, or a disposition to listen to 'all voices', internal and external (Ahmed, 1998) and exploring and experimenting with ideas (Lynch et al., 2010).

The dimension of openness to new ideas is similar to Goldberg's five-factor model of human personality (eg Digman, 1990). Consumers who are more open and tolerant to new ideas and open to new experiences (Jacoby, 1971; Leavitt and Walton, 1975; 1988).

Drawing on the individual consumer literature, Vandecasteele and Geuens (2008) argue that consumer innovativeness is positively correlated with personality traits such as openness to change (ie sensation/stimulus seeking, novelty seeking, and variety seeking) (Lynch et al., 2010).

When there is a complex situation within an organization the clarity in the communication level of all employees should be examined (Ayoko, 2007). Organizationally, such openness is a cultural element that serves to assess employees' willingness to adopt innovations (Hult et al., 2004). Van de Ven (1986) referred to this trend as the management of an organization's cultural relevance to recognize the need for new ideas and actions (Shoham et al., 2012).

Hurt et al. (1977) also included being open to new ideas and methods in their conceptualization of innovation. Therefore, innovation consists of a basic personality trait called openness to new ideas (Lynch et al., 2010).

Organizations should be open and responsive to new ideas and seek opportunities to develop them. Organizational openness addresses whether members of the organization are willing or resistant to adopt innovations. Therefore, organizational openness to new ideas and changes is considered a dimension of the OI structure (Ruvio et al., 2013).

3.8.3. Future Orientation

Strategy and entrepreneurship literatures emphasize the importance of future orientation to be prepared for future situations. (eg Venkatmaran, 1989). The need for orientation towards the future will constantly increase, because the environment is a dynamic structure that changes rapidly. This requires organizations to trust their past and anticipate and react to the future when innovating. Boyd (1991). Long-term planning provides companies with better performance than their competitors. Therefore, organizations with high OI should be future-oriented (Shoham et al., 2012).

Christensen (1997), the innovation dilemma is a trade-off between the use of past knowledge (retrospective) and the discovery of future opportunities (forward-looking). This dimension reflects a temporal perspective of organizational preparation for future environmental changes and positioning in light of these change (Ford, 2002; Morgan and Strong, 1998; Venkatraman, 1989; Ruvio et al., 2013).

Most organizations tend to rely heavily on past experience in their decision-making processes. However, foreseeing future potentials that can increase their competitive advantage will make institutions ahead of their competitors (Ruvio et al., 2013).

Innovativeness intention of the firm is important for the future orientation. Innovativeness Intention: Innovativeness is the firm's commitment to the innovation process (Berthon et al., 1999).

Avlonitis et al. (1994) the firm's strategic innovation intentions should be carefully planned and designed. Conceptualizing innovation is the firm's behavioral willingness, intention, and commitment to innovate strategically in an innovative manner (Lynch et al., 2010).

The innovation literature differs between incremental innovations based on revision of past achievements and radical innovations driven by future possibilities (Christensen, 1997). It is necessary to analyze this difference properly and accordingly, innovation studies within the organization should be future-oriented (Ruvio et al., 2013).

3.8.4 Willingness for Risk-Taking

Risk taking is the degree to which managers are willing to make large and risky resource commitments (Miller and Friesen, 1978). The fact that the competition is felt more intensely with each passing day compels the institutions to take risks. In this regard, risk-taking refers to gains or losses resulting from certain decisions and related actions. Of course, risk will include both loss and gain. Risk taking is making decisions about resource allocation, choices about which new products to develop and which markets to work in (Ruvio et al., 2013).

One-third of new products fail when introduced (Cooper and Kleinschmidt, 1987). Midgley and Dowling (1978) stated that there is a relationship between the concept of "innate innovativeness", innovative perceived risk and risky decision making tendency and human personality traits. Cowart et al. (2007) discovered that innovativeness affects perceived risk perception and directly behavioral intentions. Therefore, individuals know that they are free to experiment with ideas, take risks, challenge the status quo, try new things and not be afraid to fail, discuss "stupid" ideas, and not be punished for what they think. In this way, individuals make mistakes and basically expect innovation to be a part of their work (Lynch et al., 2010).

Risk taking is the willingness of managers to make risky decisions such as choosing a new product, market and strategic decision (eg, Venkatmaran, 1989). But managers' decisions can have ambiguous consequences. The literature associates risk with innovation. Because the development/acceptance of new ideas involves risk in the absence of guaranteed positive results (eg Caruana et al., 2002). In this context, Nystrom et al. (2002) evaluated risk taking as a moderator of the corporate context-innovation relationship (Shoham et al., 2012).

Strategic management literature associates high risk taking with innovation, such as investing in undiscovered technologies or introducing new products into new markets (Lumpkin and Dess, 1996; Rauch et al., 2009; Venkatraman, 1989). Therefore, the development or adoption of innovations is risky because there is no guarantee of their results. OI, risk taking is characteristic of highly innovative organizations (Ruvio et al., 2013).

According to Dertouzos (1999) and academics, risk is an important component of the industry. However, companies still cannot go beyond their comfort zone due to their mental state. Basically, at various levels of concern, risk is a crucial part of innovativeness within the firm. Based on all this information, innovativeness is strongly characterized by the concept of risk and perception of risk. This encourages risk-taking behavior and in turn makes the firm more innovative. Therefore, the willingness to take risks is crucial for innovation to take place (Lynch et al., 2010).

3.8.5. Proactivity

Proactivity refers to the pursuit of business opportunities independent of an organization's current products (Lumpkin and Dess, 2001; Venkatraman, 1989). Firms need proactivity to capitalize on potential opportunities, try change, anticipate future needs, and act accordingly (Dess et al., 1997; Rauch et al., 2009; Ruvio et al., 2013).

Proactive organizations actively seek and exploit growth opportunities. It attempts change, anticipates and acts according to future needs (Shoham et al., 2012).

Proactivity emphasizes the initial activities, which is one of the stages of the OI process (Zaltman et al., 1973). Therefore, the strategic management, marketing and entrepreneurship literatures see proactivity as central to innovative organizational behavior. In addition, proactivity requires managers to persuade employees of the value

of innovation in order to implement innovation (Caruana et al., 2002). Therefore, proactivity is an integral part of OI (Ruvio et al., 2013).

A validated multidimensional OI measurement; it provides the following benefits to all users: Managers may find that although they have good creative ideas, they are not proactive enough in getting them to market. Thus, managers may decide from a strategic point of view that OI dimensions are less central to the organization. Additionally, managers can use this metric to align the prioritization of OI items with their strategic goals and mission. An organization may conclude that it is preferable to take a moderate level of risk and focus on other aspects of OI. This multidimensional view of the OI therefore minimizes the risk of drawing a simple, one-sided conclusion. The promotion of OI can assist managers in decision making and resource allocation in organizations (or strategic unit) (Ruvio et al., 2013).

In summary, OI is conceptualized as a five-dimensional construct, including creativity, openness, future orientation, risk taking, and proactivity (Shoham et al., 2012). Each of these concepts is, of course, interrelated, and evaluating these five structures together in the institution is of great importance in terms of innovation. When these five dimensions are evaluated together, the gaps in the institution will be noticed more clearly and integrity will be achieved.

3.9. DIMENSIONALIZING OF ORGANIZATIONAL INNOVATIVENESS (OI)

Organizational innovativeness is a broad concept involved in a company's tendency to innovate (Salavou, 2004; Wilson et al., 1999).

Subramanian and Nilakanta (1996) consider innovation as a multidimensional construct (Table 3.3) (Borocki et al., 2013).

Table 3.3. Five Main Area of Organizational Innovativeness.

Author	Product	Market	Process	Behaviour	Strategic
Schumpeter (1934)	x	x	x		
Miller and Friesen (1983)	x		x	x	x
Capon et al. (1992)		x			x
Avlonitis et al. (1994)	x		x	x	x
Subramanian and Nilakanta (1996)			x		
Hurley and Hult (1998)				x	
Rainey (1999)				x	x
Lyon et al. (2000)	x		x		
North and Smallbone (2000)	x	x	x	x	

(Source: Borocki et al., 2013).

Subramanian (1996), durability of OI is the ability to innovate continuously over a period of time. Avlonitis et al. (1994), organizational innovativeness represents a latent capacity of firms. In whichever institution OI is implemented, it certainly ensures a change in behavior within that organization (Ruvio et al., 2013).

OI reflects a cultural characteristic of the organization and its willingness to pursue new opportunities. In other words, OI reflects organizational activities that produce visible and tangible innovative results (Baer and Frese, 2002; Denison, 1996; Borocki et al., 2013).

Innovativeness potential is the factors that enable the firm to create innovation. Lawson and Samson (2001) listed the subcategories of innovativeness capability as vision and strategy, competence base, organizational intelligence, creativity and idea management, organizational structure and systems, culture and climate, and technology management.

According to previous literature, the factors that make up an organization's innovation potential can be divided into five categories:

- (1) Leadership and decision-making processes;
- (2) Organizational structures and communication;
- (3) Cooperation and external links;
- (4) Organizational culture and climate;
- (5) Individual creativity and knowledge (Saunila and Ukko, 2012)

As a result, researchers state that organizational innovativeness should be broadly addressed and studied in a comprehensive way (Wang and Ahmed, 2004; Dibrell et al., 2008; Ruvio et al., 2013).

To measure organizational innovativeness comprehensively, the required dimensions are shown in the figure below. The measurement tool must contain these dimensions in the same frame (Yadav, 2020).

Table 3.4. Dimensions of Organizational Innovativeness.

Dimensions	Literature
Culture	Christensen, 1997; Edmondson, 1999; Ahmed & Wang, 2003; Christensen et al., 2011; Holman et al., 2011; Bodell, 2013; David & Epstein, 2014; Dayer & Furr, 2014; Couros, 2015; Osterwalder, 2016; Boston, & Zhao, 2017; Price & Toye, 2017; Berry, 2018; Kirsner, 2018; Brem et al., 2019; Goh, 2019.
Leadership	Maxwell, 2007; Christensen et al., 2011; Bodell, 2013; David & Epstein, 2014; Dayer & Furr 2014; Llopis, 2014; Couros, 2015; Boston & Zhao, 2017; Price & Toye, 2017; Kirsner, 2018.

Table 3.4. Dimensions of Organizational Innovativeness (Continue).

Strategy	Christensen, 1997; Ahmed & Wand 2003; Keller & Price, 2011; Bodell, 2013; David & Epstein, 2014; Price & Toye 2017; Price & Toye 2017; Berry, 2018; Bradley et al., 2018; Kirsner, 2018; Brem et al., 2019.
Structure	Christensen, 1997; Govindarajan & Trimble, 2010; Christensen et al., 2011; David & Epstein, 2014; Dayer & Furr, 2014; Boston, & Zhao, 2017; Berry, 2018.
Execution	Christensen, 1997; Govindarajan & Trimble, 2010; Christensen et al., 2011; Holman et al., 2011; Ries, 2011; Govindarajan & Trimble, 2013; Dayer & Furr, 2014; Boston & Zhao, 2017; Price & Toye, 2017; Berry, 2018.

(Source: Yadav, 2020).

3.9.1. Culture and Organizational Innovativeness

Teece (1998), the links between firm strategy, structure and the nature of innovation are their requirements for the innovation process. This framework shows that both formal (management styles) and informal (cultures and values) structures and the firm's external networks strongly influence the rate and direction of innovative activity (Lam, 2004).

Souitaris (2002) states that socio-economic and country-specific factors are effective on innovation. Indeed, firms classified as highly innovative are those that can effectively overcome country-specific innovation barriers. This premise has close ties to the idea that firms are established. This concept strongly implies that flexible and unusual attitudes, beliefs, and practices embedded in the cultural context can influence innovativeness at the firm level (Souitaris, 2002; Walsh et al., 2009).

Culture is an element that affects the behavior of individuals in the organization and the way they interpret what is happening around them. Emphasizing that innovation is an indispensable element for the organization and giving priority to other values that encourage innovation is beneficial in creating an organizational culture that facilitates the implementation of different types of innovation (Büschgens et al., 2013).

Organizational culture is the common values, beliefs, symbols, assumptions and ways of doing business shared by the members of the organization and is a system that holds the organization together. It is known that the quantity and quality of organizational outputs are affected by organizational culture (Berson et al., 2008). It is clear that the initiation and success of initiatives for change in organizations is directly related to culture (Detert et al., 2000).

Organizational culture is the key to innovation management (Khazanchi et al., 2007). Martins and Terblanche (2013) determinants of organizational culture; Strategy,

structure, support mechanisms and behaviors that promote innovation and open communication (Ulusoy et al., 2015).

Business organizations that want to be successful in new product development processes should have a positive work environment supported by strong management leadership. In addition, the organizational culture should be in a structure that will enable the employees in the enterprise to make efforts while working on new product development projects and make it easier for them to express their ideas and solve the problems they have encountered before. In addition, senior management should set clear goals and pay attention to the active participation of employees in decision mechanisms (Belassi et al., 2007).

Teece (1998) identifies four archetypal modes of corporate governance, including firm boundaries, internal informal structure (culture), and external linkages: multi-product integrated hierarchy, highly flexible Silicon Valley type, virtual company, and holding company. Therefore, different organizational arrangements are suited to different competitive environments and different types of innovation. In other words, an autonomous innovation is an innovation that can be brought to the market without major changes in related products and processes. In the context of this autonomy, the most prominent issue is company culture (Lam, 2004).

Skarzynski and Gibson (2008), innovation capability leadership and organization, people and skills, process and tools, and culture. Valuing this autonomy, the most obvious issue is company culture (Saunila and Ukko, 2012).

According to a study conducted on 759 companies with the world's 17 largest economies, it was concluded that corporate culture is the strongest driver of radical innovation among countries (Tellis et al., 2009). Jassawalla and Sashittal (2002) report that cultures that are highly supportive of innovation are associated with encouraging teamwork and effective new product development, namely risk-taking and creative actions that seem to be directly linked to product innovation (Ulusoy et al., 2015).

Strategic orientations emphasize strategic intent at all stages of firm management and attribute it to firm culture. Most researchers consider corporate culture among the most important factors most of the time (Nacinovic, 2009). Therefore, an innovation-oriented organizational culture contributes to superior performance and competitive advantage (Acar and Acar 2012).

3.9.2. Leadership and Organizational Innovativeness

Leadership is a phenomenon that has existed since the early ages of humanity. The concept of leadership has evolved in different directions over time, deeply affecting both daily life, politics and business world. It is known that autocratic leadership, charismatic leadership, transformative leadership, paternalistic leadership, open leadership, moral leadership and many other leadership types have developed over the years (Yılmaz and Şahin, 2014).

The more talented individuals and leaders an organization has, the better it is at developing ideas, experimenting, and creating a successful product or service. On the other hand, it is also common for large numbers of people to make decisions or set directions for an organization to get nowhere (Geoffrey, 2013). That is, leadership is the role played by an individual who can navigate the unknown with absolute confidence and passion, and the starting point of any innovation (Yadav, 2020).

Most researchers also emphasize the role of leadership in supporting a firm's ability to innovate (Lawson and Samson, 2001; Slater et al., 2014; Saunila et al., 2014; Iddris, 2016). Today's business world encourages each organization to act like a leader. Thus, it is thought that individuals can have more creative and innovative features.

The innovation-oriented leader creates an organizational culture and positive environment conducive to innovation in the company, emphasizes communication that allows the sharing of knowledge and expertise necessary for innovation, and encourages creative thinking and action (Naranjo-Valencia et al., 2011; Sen and Eren, 2012; Wolf et al., 2012).

Vincent et al, 2019, managers should foster creativity, experience, and openness to new ideas within the organization. In addition, creativity depends on the leaders' ability to create opportunities and provide the necessary resources (Prajogo and Ahmed, 2006; Sudolska and Lapinska, 2020).

One of the frequently discussed concepts in the literature on leadership practices in organizations is leader-member interaction. According to the leader-member interaction theory, the leader does not establish an equal and same type of relationship with each of his followers, but develops separate relationships (Lee, 2008).

In addition, different studies have shown that leadership practices in businesses are effective on innovativeness. According to this; Lee (2008) stated that leader-member

interaction positively affects innovativeness. In another study, Dunne et al. (2016), in their study on small business organizations, revealed that if leaders implement efficiency and productivity-enhancing practices, they both directly trigger innovation and indirectly affect innovativeness positively. In their experimental study involving 125 businesses, Stock et al. (2014) found that innovation-oriented leadership increases R&D cooperation between business units and this increased cooperation shows an innovative feature (Demirel, 2020).

Organizational innovativeness includes the development and implementation of new intra- or inter-organizational structures and procedures (Armbruster et al., 2006). Thus, organizational innovativeness refers to changes in an organization's hierarchy, routines, and leadership resulting from new structural and managerial business models to improve the coordination of workflows and employee motivation (Osterloh et al., 2001; Gallego et al., 2011).

Leadership mediates the transformation of findings into critical success and failure indicators that will contribute to a diagnostic tool within the scope of organizational innovativeness (Yadav, 2020).

Because innovation is the result of a constant struggle against high uncertainty, it involves a high level of risk. The traditional method of decision making through a linear process does not assist innovation. Because innovation is often surrounded by high uncertainty and variables are unpredictable. Therefore, an innovative organization needs leadership that increases the speed of decision making through creative assumptions, experiences and validation of ideas. If the leader supports such a process reflects on the ability to influence, inspire and align the organization with its vision to achieve a common goal. In other words, it is necessary to evaluate where the leader belongs in the leadership hierarchy (Collins, 2005; Abraham and Dias, 2014; Dyer and Furr, 2014; Yadav, 2020).

An organization can do this by looking at a framework as Collins (2005) illustrates below:



Figure 3.3. Hierarchy of Leadership Level (Collins, 2005)

This chart shows that leaders up to level 4 are extremely efficient. Here, leaders successfully maximize performance with scarce resources, effective team players, and foresighted organization. However, leaders up to level 4 should not ignore that their personal ambitions, egos, and rational fears can hinder such a pursuit. Research shows that level 5 leaders have the skill, knowledge, and humility to put everything aside and achieve both goals simultaneously, and therefore are more inclined than others to achieve both goals at the same time (Yadav, 2020).

Leadership is influential in all other organizations, not just nonprofit business organizations. As a matter of fact, in a study conducted by Jaskyte (2004) on non-profit organizations, it was determined that leaders have the opportunity to increase innovation if they both change their leadership practices within the organization towards transformational leadership and create an organizational culture (Demirel, 2020).

3.9.3. Strategy and Organizational Innovativeness

Strategy is the framework that guides decision makers' choices to achieve goals. Strategy includes plans or methods to be used to achieve a desired state in the future. Strategy formulation is part of the decision-making process within the organization. All

components of the organization, its innovative activities and strategy must be compatible with each other (Fathali, 2016).

Adoption of a new idea in an organization leads to changes in organizational strategy implementation performance in that structure (Damanpour and Evan, 1984). Implementation of organizational strategy is a persistent theme in both strategic management and organizational skills (Palladan et al., 2016).

A company's strategy is concerned with the degree to which it mobilizes available resources to achieve corporate goals in an uncertain environment. Strategy is a firm's ability to match external opportunities with internal capabilities to explore new markets and offer innovative products (Wang and Ahmed, 2004; Iddris, 2016). The focus on corporate learning and collaboration with other market players is determined by the company's strategy. All these activities increase the firm's ability to innovate (Raghuvanshi and Ghosh, 2019; Sudolska and Lapinska, 2020).

One of the most important dimensions in measuring innovation is the strategy of the organization. Because the level of success an organization will achieve while innovating is determined by strategy (Drucker, 1985; de Wit, 2017). It is essential to keep an organization active, on track, and engaged in the pursuit of innovation (Yadav, 2020).

Innovation strategies and processes are essentially intertwined. These processes indicate whether innovations are part of business planning and thinking. Innovation processes provide a transparent and organized system within an organization, while innovation strategy provides guidelines and strategic framework for the systematic development of innovation (Yadav, 2020).

For micro-economists, organizational structure is both a cause and a consequence of managerial strategic choice in response to market opportunities. Organizational forms are created from the strategy and structure of the variables. The main argument is that certain types of organizations or qualifications are more likely to deliver outstanding innovative performance in a particular setting (Acar and Acar 2012).

Individual creativity, organizational climate and structure affect the strategy process of an innovativeness. These affect the first stage of the innovativeness process. On the other hand, organizational level variables such as organizational structure and strategy affect the second stage of the innovativeness process (Greve, 2003; Fathali, 2016).

Walker, Damanpour, and Devece (2011) emphasized management innovation as a new approach to developing an organization's strategy, designing organizational structure, changing management processes, employee motivation and compensation. The strategic dimension of management innovation is mainly based on the organizational innovativeness structure developed by Wang and Ahmed (2004) (Krasnicka et al., 2016).

The inclusion of the strategic dimension in management innovation has been suggested by Terziovski (2010). This model includes independent innovation strategy, official structure, customer and supplier relations, innovation culture and technological capability structures that can affect the performance of firms (Terziovski, 2010).

Innovation strategy is an independent variable. Akman and Yılmaz (2008), innovation strategy is a multidimensional structure. For example, an organization's aggressive attitude towards emerging market opportunities, its ability to explore and anticipate future opportunities, plan for innovation, and analyze and monitor the environment for others (Krasnicka et al., 2016).

Innovation management also assumes that management should include the following functions: forecasting, planning, organization, coordination, motivation and incentive, control. Burennikov (2011) innovation management should ensure the development of innovative goals. In other words, the creation of innovative goals is not a function, but the development phase of the innovation strategy. However, it should be noted that; It makes sense to combine the function of developing an innovation strategy with planning in one function (Chernoivanova, 2015).

Kaplan and Norton (2004) strategy map considered the innovation process as a linear and separately definable structure (Saunila and Ukko, 2012). Dobni (2010), on the other hand, focuses on the strong link between strategy and innovation. Dobni points out that developing innovativeness competencies, acquiring relevant resources, and incorporating innovation goals into a strategy is very important (Krasnicka et al., 2016).

The 2007 Booz Allen Hamilton Global Innovation 1000 report argues that statistical analysis divides innovation strategy into three distinct categories: Need Seekers, Market Readers, and Technology Drivers (Komninos, 2008; Ramadani and Gerguri, 2011):

1. Companies Seeking Needs: Focuses on being the first to bring new products to market.

2. Market Readers: They differ in their preference for gradual change and being a fast follower of the markets.

3. Technology Drivers: They focus less on direct customer input while focusing on the high-tech approach to innovation (Ramadani and Gerguri, 2011).

One of the main premise of the literature is that an organization's strategy must fit its environment if it is to gain competitive advantage – hence the concept of “strategic fit” (Zajac et al., 2000; Liu and Gima, 2018).

Research claims that firms must find a fit between their environment and their strategies (Bourgeois, 1980). If the strategy formulation process is not environmentally friendly, superior performance is unlikely (Anderson and Zeithaml, 1984; Jauch et al., 1980).

Similarly, the effectiveness of firm resources and capabilities is determined by their compatibility with environmental conditions. Environmental factors can neutralize or disperse the comparative advantage of a resource (Porter, 1991; Teece et al., 1997; Liu and Gima, 2018).

Rumelt (2011) states that a good strategy consists of three main components: first, diagnosis; second, a guiding policy; and third, a series of consistent actions as shown in the diagram below (Yadav, 2020).

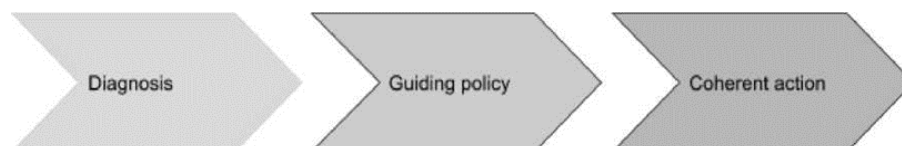


Figure 3. 4. Components of A Good Innovation Strategy (Rumelt, 2011)

Steve Jobs said, “Innovation means no to a thousand things”. This shows how important it is to use resources and time correctly to innovate. In other words, with organizational innovation, it determines where an organization will play. For example, organizations can improve quality by focusing on creating innovation value through incremental advances in existing value. If customer preference is changing, it can focus on a jump in current value. This is an indicator of the effective use of strategy in the context of organizational innovation (Yadav, 2020).

3.9.4. Structure and Organizational Innovativeness

By directly controlling the structure of an organization, decision makers can have the power to influence innovation in their company. The distribution of control and responsibility in an organization is determined by the grouping, coordination and distribution of tasks among departments and employees (Daft, 1978). According to scientific knowledge, organization has many sub-dimensions, and a definitive list of them is given by Damanpour (1991): formation in the organizational structure, centralization, professionalism, specialization, functional and vertical differentiation, resources, process and cultural variables. Other suggestions for these sub-dimensions are offered by Aiken and Hage (1971). It includes decentralization, formalization, professionalism, complexity, planned and unplanned communication (Ulusoy et al., 2015). Effective innovation management then requires a better understanding of the organizational structures and managerial behaviors best suited to business opportunities (Salerno et al., 2015; Tidd et al., 2009; Bagno et al., 2017).

Structure includes how a firm is organized, how it is managed, how decisions are actually made and executed. Thus, thinking broad strategy largely determines what it actually does (Nelson, 1991).

In the process of organizing innovation activity and innovative work, it is also necessary to take into account the character of organizational structures' traits and their ability to stimulate innovations (Chernoivanova, 2015).

Currently, the types of organizational structures and their openness to innovations are not controversial in the economics literature. Therefore, the classification of types of organizational structures has been made according to the following criteria: flexibility; management level; by combining; through interaction between subdivisions of the enterprise; through interaction with the interior and the environment; according to the type and type of production; with the organization's response to a particular environmental factor; by the nature of the relations between the elements; with the presence of dominant types of organizational relationships; through the promotion, implementation and dissemination of innovative projects; with goal orientation, in which the features of existing organizational structures are generalized. In addition, the innovative suitability of the organizational structure for the types of innovation existing in the organization has been determined (for example, project and matrix structures for

revolutionary, fundamental, modifier, comprehensive innovations; linear-functional structure for so-called innovations, ordinary innovations) (Chernoivanova, 2015).

Employees' individual innovation efforts are sustained by the impact of firm climate, structure, and human capital on the corporate environment that emerges in firms' business practices and strategies, management tools, and internal communication practices (Fry, 1987). The competitive reflection and innovative orientation of the firm environment depends on the success of the employees in transforming their challenging new ideas into corporate practices and investments (Pinchot, 1985; Kuratko, 1990; Hornsby et al., 2002). A firm's innovative capability thrives when these transformation processes are infused into its business methods, practices, strategies and efforts (Sathe, 1985; Kanter, 1996; Ulusoy et al., 2015).

Damanpour and Aravind (2011) noted strategy and structure innovation (they present innovation in an organization's structure versus innovation in strategy). Accordingly, fundamental changes in a structure follow fundamental changes in a strategy. According to Damanpour and Aravind (2011), the distinction between structural and strategic innovations provides a better understanding of managerial innovations (Krasnicka et al., 2016).

When choosing the organizational structure, it is necessary to consider the relationship between innovations and their life cycle. Analysis of the studies shows that the interrelationship between the stages of the life cycle and the types of organizational structures that can work most effectively on these stages needs to be validated. At the stages, attention should be paid to:

- Scientific research and engineering development
- Acquisition of innovations, linear-functionality of preferred organizational structures (Chernoivanova, 2015).

However, it should be noted that the first stage can also be carried out with a matrix organizational structure. The development of new products in a short time can be supported by the matrix organizational structure, the divisional organizational structure, all stages from creation to use, as well as the development of progressive and marketing innovations. Project organizational structure can implement technically complex new product mastery and application of innovations (in linear, linear-functional structures). The implementation of innovation can also be supported by the functional organizational

structure and the linear-functional structure, as well as the possibility of minor changes in technology. The development of the innovative project can be implemented by all organizational structures, except for functionality. As a result of generalization, it was concluded that such organizational structures are best at all stages of the life cycle: matrix, project, department (Chernoivanova, 2015).

3.9.5. Execution and Organizational Innovativeness

Execution determines whether an organization can achieve its innovation goals. Because of its crucial role in determining the success and failure of innovation, the executive sheds light on the benefits and drawbacks it offers. Thus, the organization tends to explore and then turns them into indicators of success and failure for a diagnostic tool (Yadav, 2017).

The importance of focusing on a key function of management and executive for a better understanding of organizational performance in an organization makes sense on both conceptual and strategic grounds (Han et al., 2021).

Execution transforms ideas in an organization into innovation (eg product, service, process, management practice, etc.) that adds value to its customers. Execution uses available resources and capabilities to support innovation. This is the fuel engine that empowers creative assumptions to travel from the unknown to the known through continuous learning (Yadav, 2020).

An organization's ability to innovate is highly correlated with its available resources. A decisive prerequisite in this case is to produce innovation projects using available resources for normal business operations. Here, the role of the manager comes to the fore. The possibility of innovation in an organization is largely determined by the freedom of actors and subordinates to develop and implement innovative solutions. This freedom is enabled or suppressed by organizational decision-making structures and prevailing institutional conditions. In this context, senior management should play an active role in ensuring this freedom. That is, the "loose connection" of organizational processes increases the likelihood of innovation (Behrends, 2009; Kessler et al., 2015).

In organizations, the leader sets the strategy to innovate near and around the core of the business. The leader creates a flexible structure aligned with an innovative culture that generates a synergetic execution engine to bring innovation to market. This execution approach is similar to the core values of the organization but differs in planning and

execution. This differentiation is strategically based on previous processes and procedures, the way it works, financial key performance indicators, etc. It requires changing some things and learning new skills. The purpose of the planning process is to transform the unknown into the known. Because unknowns are not innovations unless they are known (Yadav, 2020).

Innovation seems to be a 'collective affair': Team cohesion towards innovation are psychological processes that increase the likelihood of producing effective innovation. Therefore, a contextualized relational practice supported by processes of shared responsibility and meaning should be developed by managers. Moreover, innovation is a dynamic process that becomes fluid when all social systems such as individuals, groups, and overall organization are involved. Activation of organizational practices by management is related to individuals being connected to each other and feeling of belonging to the organization. In this respect, executive and decision mechanisms play very important roles in ensuring this belonging and commitment (Farnese and Livi, 2016).

CHAPTER IV: LIFE SCIENCES SECTOR

The life sciences sector is among the indicators used to measure the development levels of countries and is considered an important development indicator in today's world. R&D activities carried out in the field of life sciences in developed countries have an important place in total R&D activities. Because technological developments related to R&D directly affect the life sciences sector. Life sciences technologies are developing continuously and rapidly with the R&D activities carried out. As a matter of fact, medicine, food, environment, cosmetics etc. in the world and in Turkey. Factors such as the increase in the demand for its products every year, consumers turning to healthy and natural products, and the structuring of legal obligations according to ever-increasing standards each year leave companies operating in these sectors face to face with a fast competition. This industry, which is based on innovativeness and R&D, makes significant contributions to human life by being shaped by scientific findings and innovations emerging day by day (Dikbaş and İmrak, 2014).

The life sciences sector is one of the most dynamic sectors of the global economy. The United Nations 2007-2008 Information Economy Report reveals that the life sciences technologies sector is the fastest growing industry globally and is shifting towards developing countries, especially Asian countries, with increasing rates. This increase, which is directed from developed countries to developing countries, will continue; it is foreseen that especially developing countries will have an important place in trade among themselves.

Foreign direct investors are important players in the life sciences sector, and developing countries are becoming the center of attraction for these investments day by day. In addition to international life sciences technology companies in developed countries, international companies from developing countries have also been included among the companies that make foreign direct investments in the sector. In fact, the results of the research by the United Nations (UN) show that the production and services of life sciences technologies will continue to be the focus of international investments.

Although this means a great potential for developing countries, it shows that the competition between countries will increase even more. Therefore, it is foreseen that strong policy measures should be implemented by the state in order to attract international investments and to develop the national life sciences technologies sector (Dikbaş and İmrak, 2014).

4.1. DEFINING THE LIFE SCIENCES SECTOR

The life sciences sector is an umbrella term for companies and research institutions dedicated to improving the lives of living things. Any aspect of science that relates to the study and development of human, plant and animal life is a subcategory of the life sciences industry. The branches of this sector include pharmaceutical, biotechnology, cosmetics, medical industry and clean environment technologies. The life sciences sector encompasses the interdisciplinary scientific fields about all living organisms, including microorganisms, plants, animals and humans. Biology, medicine, veterinary, dentistry and pharmacy etc. It is the general name given to the branches of science related to life sciences, aimed at increasing the standards and quality of life.

Life sciences industry is life-centered and includes biodiversity, ecology, biotechnology, molecular biology and genetics, analytical chemistry, organic chemistry, biochemistry etc.

4.2. SCIENTIFIC CLASSIFICATION OF THE LIFE SCIENCES SECTOR

When a more detailed industrial classification is made, the life sciences sector; it refers to a set of systemic sub-sectors as below.

- Biotechnology Sector
- Pharmaceuticals (Pharmacology) Sector
- Cosmetics Sector
- Medical Industry Sector - MEIS (Biomedical Technologies)
- Clean Environment Technologies (Cleantech)

Life sciences sub-sectors and related companies always operate in an environment of uncertainty. Besides, new technological developments, for example, more complex electronic medical records, wearable health devices, important developments in

genomics, immunotherapy, gene therapy and data analysis etc. prepares the life sciences industry for transformation.

4.2.1. Biotechnology (BT) Sector

Before the development of the chemical industry, people mostly met their needs by using natural resources directly. However, with the increase in the world population, the needs have increased at the same rate. The development of the chemical industry also began in the same period. The rapid development of the chemical industry has led to undesirable situations while meeting people's needs and making their lives easier. In the following years, legal regulations were introduced with the increase of pollution originating from the chemical industry. Although these arrangements have been successful to some extent, our world continues to be polluted. Searches for the solution of such problems have begun, and biotechnology has also begun to develop. The two most important gains that biotechnology will bring to the industry are; It enables the use of renewable resources and reduces the amount of waste compared to the chemical industry (Akkaya and Pazarlıoğlu, 2012).

Biotechnology is derived from the words biology and technology. It was first defined by Karl Ereky in 1919 as processes in which raw materials are converted into new products with the help of biological systems. However, its definition in recent years is the use of biological systems in the production of goods and services with methods that will not adversely affect the environment and human health (Başaga ve Çetindamar, 2000).

The multidisciplinary combination of fields such as biotechnology, physics, biochemistry, genetics, physiology, molecular biology has been effective in the development of biotechnology. Biotechnology deals with the development of plants, animals and microorganisms with DNA technology, producing substances that do not exist naturally or are as new and rare as we need them to be (Akkaya and Pazarlıoğlu, 2012).

Over time, the usage areas of biotechnology have expanded and new awareness has emerged. In other words, different definitions have been made over time. For example, the European Federation of Biotechnology-EFB defined biotechnology in the 1980s as the integrated use of biochemistry, microbiology and engineering sciences to exploit microorganisms, cultured tissue and cell fragments in technological applications. EFB also redefined biotechnology in the 1990s as the integration of the natural and engineering

sciences, microorganisms, cells, their parts and molecular analogues for the production of products and services (Akkaya and Pazarlıoğlu, 2012).

The generally accepted definition of the term biotechnology was made in the United Nations Convention on Biological Diversity in 1992 as follows: Biotechnology is any technological application in which biological systems, living organisms or their derivatives are used to create or develop products for a specific purpose. Although it seems like a new concept to us as a name, the history of biotechnology dates back to ancient times. In the light of the above definitions, many products that human beings have consumed as food since their existence are biotechnology products.

Table 4.1. Biotechnonlogy Classifications By Technological Criterion

Area of Biotechnology Use	Scientific Technologies and Methods
DNA-the coding	Geneomics, pharmacogenetics Gene probes DNA sequencing/synthesis/amplification Genetic modifcaiton
Proteins and molecules- the functional blocks	Protein/peptide sequencing/synthesis Lipid/proteinglycoengineering Proteomics Hormones and growth factors Cell receptors/signaling/pheromones
Cell/tissue culture/engineering	Cell/tissue culture, tissue engineering Embryo manipulation Hybridization Cellular fusion Vaccine/immune stimulants
Process biotechnologies	Bioreactors Fermantation, bioprocessing Bioleaching, biopulpnig, bioleaching Biodesulpherisaiton Bioremediation, biofiltration
DNA and RNA vectors	Gene therapy Viral vectors
Other	Bioinformatics Nanobiotechnologies Other

(Source: Matyushenko et al., 2016)

For thousands of years, people have unwittingly benefited from BTs through trial and error, without knowing how biochemical and genetic mechanisms work (Başağa and Çetindamar, 2000). Biotechnology has found a place mainly in the field of genetic engineering. Genetic engineering is a biotechnology that forms an integral part of human

history. However, this technology is used for different purposes. Sociobiologists who try to study the biological basis of social behavior with biotechnology. They believe that genes play an important role in determining social behavior. However, there is a dialectical relationship between nature and upbringing, and this starts very early in the life of living beings. The problem is the resolution of this relationship and the discovery of the genetic and social aspects of social behavior (Erbaş, 2008).

Although different authors have different classification suggestions, top organizations representing the industry (e.g. The European Association for Bio-Industries in Europe; Europabio, Biotechnology Industry Organization: BIO in America) and some authors divide the biotechnology industry into three basic subgroups. However, there are slight differences between the views of the academic and industrial circles regarding both the number and scope of the subgroups (Tunçgenç, 2014: 6).

As seen in Figure 4.1, the biotechnology sector is generally divided into 3 different sub-sectors, and each sub-sector is divided into sub-sectors among themselves.

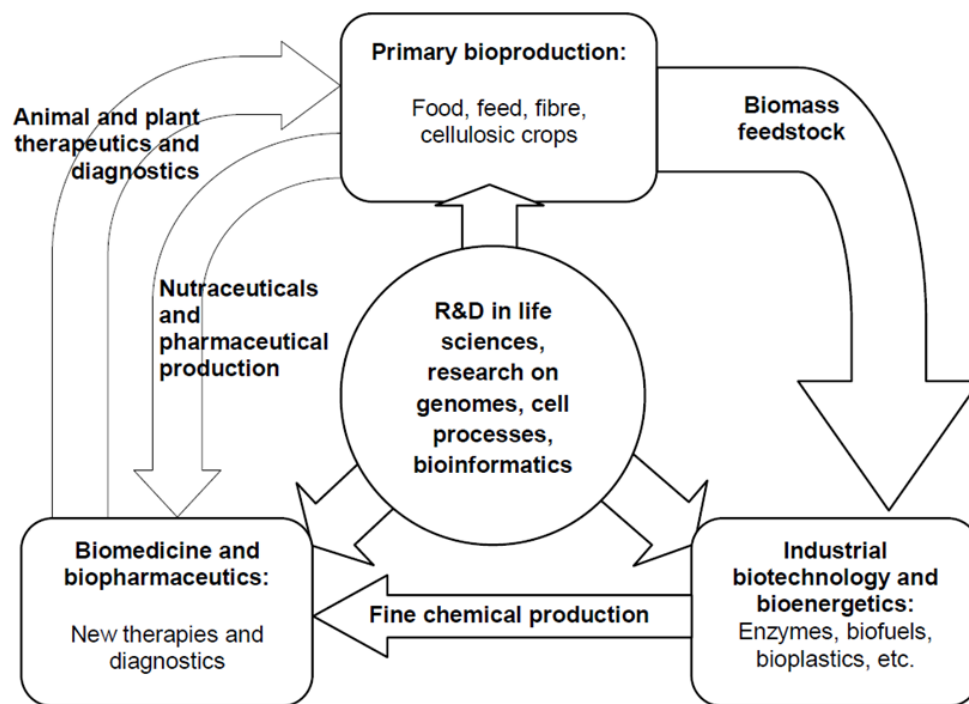


Figure 4.1. Current And Potential Convergence Of Three Basic Industries Of Biotechnology Application (size of arrows reflects the relative importance of integration) (Matyushenko et al., 2016)

To summarize, today, biotechnology has applications in many fields from plant breeding to cosmetics, pharmaceuticals and disease control.

The knowledge, techniques and product technology of biotechnology for different sectors and industries are all within the scope of biotecnica. Organizations that offer products and services in all areas of Life Sciences, from scientific research to laboratory environments, from measurement, imaging and analysis technologies to industrial processes, are considered within the scope of biotecnica. As explained above, biotechnology has three main areas: medical, agricultural and industrial biotechnology. The shares of biotechnologically produced products in the world market; food sector (77%), antibiotic (12%), medicine-kit (7%), agriculture (3%) sectors. There are developments in biotechnology in many areas of life, from human health to agriculture, from chemical engineering to environmental protection, from food production to energy production. In this direction, biotechnology is also divided into sub-branches and these sub-branches are defined with color codes (Akkaya and Pazarlıoğlu, 2012).

Table 4.2. Biotechnology Classifications By Colours

Colour	Biotechnology Activity Field
Red	Biomedicine, Biopharmaceutics, Diagnostics
Blue	Aquaculture, Coastal and Marine Biotechnology
Yellow	Food Biotechnology, Nutrition Science
Green	Agricultural Biotechnology, Bioenergetics (Biofuels) Biofertilizers, Bioremediation, Geomicrobiology
Brown	Arid Zone and Desert Biotechnology
Black	Bioterrorism, Biowarfare, Biocriminology, Anticrop Warfare
Violet	Patents, publications and intellectual property rights (Legal, ethical and philosophic issues)
White	Industrial Biotechnology
Gold	Bioinformatics, Nanobiotechnologies
Grey	Classical fermentation and bio-process technology, Environmental (ecological) biotechnology

(Source: Akkaya and Pazarlıoğlu, 2012)

- Green Biotechnology covers the application area of modern plant production. One of the most important areas of green biotechnology is gene technology.
- Blue Biotechnology generally refers to ocean and aquatic biotechnology. It can be given as an example to protect various ocean creatures and to maintain their species.

- Gray Biotechnology, which deals with the field of environmental technology. Here, biotechnology processes are used for soil purification, wastewater cleaning, waste gas and polluted air cleaning, garbage and other waste recycling.

- Red Biotechnology is accepted as the most important application area of biotechnology. Biotechnology processes are playing an increasingly important role in the development of new drugs (eg cancer drugs).

- White Biotechnology, also known as industrial biotechnology, is the design and use of organisms to produce various beneficial chemicals or to destroy harmful and polluting chemicals through various enzymes (Matyushenko et al., 2016).

Biotechnology includes environmental sustainability and supply of food, improvement of water quality, supply of renewable energy, improvement of animal and human health, prevention of environmental pollution with bioremediation, biological control of diseases, weeds and pests and development of more efficient new plant varieties, detection of invasive species and it can provide solutions for technological innovations in many areas such as the protection of biodiversity by preventing the excessive production of species and providing the benefits to be obtained from them with biotechnological methods. Biotechnology applications, the use of which has become widespread in many areas in response to the increasing needs due to factors such as population growth, aging and insufficient resources, has brought the world into a bioeconomy process.

4.2.2. Pharmaceutical Sector

Chemical preparations that make it possible to diagnose and treat a disease or to prevent this disease with its effect on living cells are called drugs. Pharmacology is the science of medicine. The drug is a pure chemical substance used in medicine and has biological activity, or a mixture containing a standard amount of active substance of plant or animal origin equivalent to it. In the most general definition, medicine is various preparations and products that are sourced in the treatment of various diseases or in the correction of a function of organisms (Petrol İş, 2010).

Egyptians and Chinese used plants, animals and various minerals to heal some diseases in ancient times. The science of medicine (pharmacology) has also developed along with the development of modern science.

In general, 4 main features (pharmacological, chemical, target systems and the region of action) stand out in the classification of drugs:

1- Classification According to Pharmacological Properties

In this category, drugs are classified according to their effectiveness. The biggest advantage of this is that it can show all the drugs that can be used for a physiological problem. Examples of such classification are drugs, analgesics, antibiotics, anti-inflammatories, antidepressants, etc..

2- Classification According to Chemical Properties

Many drugs have the same organic skeleton due to their structure. This makes it easy to name drugs according to the skeleton they have. Eg. Barbiturates, penicillins, catecholamines, steroids.

3- Classification by Target System

In this case, drugs are classified according to the areas in the body where they act. For example, neurotransmitters, antihistamines, cholinergics. This classification is a more specific classification than the other two classifications and it is understood where the drug affects in the body.

4- Classification by Region of Influence

This is more specific than the classification above, and drugs are grouped according to which enzyme, enzyme group or receptor (receptor) they act specifically on. For example, anticholinesterases are the name given to the group of drugs that inhibit the acetylcholinesterase enzyme.

The pharmaceutical sector is one of the most critical sectors of the economy in terms of both production volume and trade capacity. What makes the drug different from other economic products is that it is non-substitutable. Therefore, drugs with exchange value are indispensable products regardless of their price. Pharmaceuticals is therefore the most critical sector of the World economy and will continue to maintain its importance regardless of cyclical and structural trends (Petrol İş, 2010).

For the pharmaceutical industry, absolute control and intervention of the public authority is required at all stages from the development of the product to its presentation to the consumer. This control and intervention is critical not only for public and/or consumer rights, but also for competition (Petrol İş, 2010).

The competitive power of pharmaceutical companies is largely determined by the original drugs developed and the patents obtained for these drugs. In addition to original drugs, generic (equivalent) drugs are also produced in the pharmaceutical market. Generic

drugs are products that are produced and offered for sale after the protection period of the original drugs has expired. About a quarter of the world pharmaceutical market belongs to e-generic drugs (Petrol İş, 2010).

The World Trade Organization's (WTO) Intellectual Property Rights (TRIPS) Agreement on the pharmaceutical industry and its results play a decisive role in this industry where invention and patent are of great importance. It can be said that the TRIPS Agreement, which regulates Intellectual Property Rights, is in favor of developed countries that produce innovations and inventions (Petrol İş, 2010).

With these agreements, the production of copy drugs has become almost impossible all over the world, while the production of generic drugs has been determined by clear and strict rules. Many pharmaceutical companies that cannot adapt their pharmaceutical production and marketing activities to this new era will face the threat of withdrawal from the sector. Therefore, in developing countries, it is imperative that local companies allocate resources to R&D investments and take steps to improve original drug production. Failure to implement these policies, which is the only way to ensure and increase competitiveness in the pharmaceutical industry, leads to the bankruptcy of domestic pharmaceutical companies or their acquisition by foreign pharmaceutical companies in these countries. The fact that these countries are increasingly dependent on foreign sources in the pharmaceutical sector is another result (Petrol İş, 2010).

According to the Pharmaceutical Industry report of the Ministry of Industry and Technology, General Directorate of Industry and Efficiency (2020), the size of the world pharmaceutical market was 1.42 trillion dollars. The top 10 countries in pharmaceutical exports account for 77% of total exports (T.C. Ministry of Science, Industry and Technology, 2020).

It is known that the world pharmaceutical market is concentrated in 3-4 big markets. The three major markets are USA, EU and Japan. The USA has five of the top ten pharmaceutical companies (Pfizer, Johnson and Johnson, Genentech, Amgen, Merck).

There are many important generic drugs and medical device manufacturers in Turkey that have come together to create an active and growing healthcare market. Generic and brand name drug production capacity in Turkey is a strong incentive for foreign companies to move their production to Turkey.

4.2.3. Cosmetics Sector

According to the Cosmetic Law No. 5324, the definition and scope of cosmetics covers products prepared to be applied to different external parts of the human body such as epidermis, nails, hair, hair, lips and genital organs, mouth and teeth or mucus. Its purpose is to keep these parts in good condition by cleaning, scenting, protecting, including hair dyes, hair lighteners, changing or correcting their appearance (TOBB, 2008).

Cosmetics are products in the form of a substance or mixture that is used as a cleaner, changer of appearance, perfumer, corrective or protective purpose of body odor, in the outer part of the human body such as hair, epidermis, nails, lips or in the interior such as teeth and mouth area. Since ancient times, human beings have used these products to beautify, look healthy and attractive. Cosmetics used to have beautiful, healthy, well-groomed and smooth skin positively affect women's physical and mental well-being by increasing their self-confidence. Since the concept of beauty has been associated with women throughout the history, the cosmetics industry has considered this group as the target audience. Generally, the female body is used for the promotion of cosmetic and beauty product groups in written and visual media. The message that it is your right to be much more beautiful with various mass media is internalized by using images of beautiful and well-groomed women in advertisements and this situation is presented as a part of daily necessity (Kocaöz and Eroğlu, 2014). The interest of the visual and written media on this subject, the desire of individuals to live a more social life and to attach importance to their appearance, the increase in the number of beauty centers and the rapid developments in the cosmetics sector have increased the demands for the consumption of personal care products. Although cosmetics are still used today only to beautify and look attractive, the desire to reduce the visible signs of chronic and photo-aging as the life expectancy increases has led people to new searches. In line with these requests, cosmeceutical products that reduce lines and wrinkles, prevent coloration, and increase the soft appearance of the skin have begun to be developed rapidly. Many substances that accelerate wound healing and are thought to be effective in some metabolic processes have been added to these products. Cosmetic products are offered not only to improve the appearance, but also to create an effect at the cellular level by adding antioxidants, growth factors, peptides, polysaccharides, plant extracts and skin lightening substances. Considering the effects, today's modern cosmetics no longer comply with the definition

of classical cosmetics and consist of cosmeceuticals or active cosmetics, which is a new group between medicine and cosmetics (Kocaöz and Eroğlu, 2014).

Includes bath and shower products, toilet soaps, deodorants, dental, hair and skin care products, color cosmetics, fragrances, aftershaves, male care and baby care products (Jones, 2006).

According to the sector reports of the Ministry of Economy, the products included in the sector are; essential oils, fragrance blends, perfumes, beauty/make-up and skin care, hair, oral/dental health, shaving and toilet preparations, body deodorants (T.C. Ministry of Economy, 2016).

When we look at the history of the cosmetics industry, it is seen that the foundations of many products we currently use were developed in the United States in the nineteenth year. Colgate made the first toothpaste in 1873, Vaseline in 1878 the cream we know from petroleum gelatin as vaseline, in 1901 Gillette the first razor, in 1907 Nivea the first long-lasting moisturizer, L'Oreal in 1911 the first synthetic hair dye discovered by a young chemist, the first metal lipstick It is seen that in 1915, the Hoffman La Roshe company, which previously produced vitamins in a pharmaceutical company, switched to the personal care sector and developed the first hair lotion called Pantene. Soap exports, which made an important contribution to the development of civilization, also had a large market in America in the 19th century. In addition, it started to appear in magazines such as Vogue, The Queen and Harper's Bazaar, which are three important women's fashion magazines, in order to advertise the products of companies in the cosmetics sector such as mascara, shampoo, hair dyes, make-up materials, etc. (Jones, 2006).

The oldest cosmetic products are soaps. Cashmere Bouquet, produced by Colgate in 1866 in the USA, and Ivory, produced by Procter and Gamble in 1879, Sunlight, produced by Lever in England in 1884, are known as the first modern soaps with additives and packaging in the western sense (TOBB, 2008).

In Turkey, it is seen that the first regulations regarding soap started with Mehmet the Conqueror, and regulations were made on issues such as the quality, price, trade and control of soaps until the period of Suleiman the Magnificent. It is known that tallow and olive oil are mostly used in the production of these soaps (TOBB, 2008).

The income from the cosmetics industry in America in 1915 was 45 million dollars, in 1920 it was 129 million dollars, in 1930 it was 340 million dollars and twenty years later

it was 840 million dollars; It is stated that the number of companies that entered the sector in 1954 by producing only one product, such as make-up (MaxFactor), mascara (Maybelline), shampoo (Helene Curtis). Thus, it is seen that the cosmetics industry, which has an important place in the value system, has ceased to be a luxury and has become a necessity (Jones, 2006).

The effect of raw materials or systems in their compositions for the expected or targeted properties of cosmetic products, which are indispensable elements of daily care, has gained importance, thus causing an increase in the production of new raw materials and the use of new technologies. In natural raw materials; new natural ingredients gained importance in the cosmetics industry with the 'green movement' that started in Europe at the end of 1960, and it is used in herbal, marine, mineral, etc. originated and even organic cosmetic raw materials, mixtures and finished products have quickly found their place in the market (Yapar and Tanrıverdi, 2016).

In summary, cosmetics and cleaning products have an indispensable place in our lives. In this context, the cosmetics and cleaning products sectors are one of the most important industrial branches that meet the daily needs of the consumer in order to maintain the quality of life.

4.2.4. Medical Industry Sector (MEIS)

The medical industry sector (MEIS) is an interdisciplinary industry branch that mainly deals with the production of all substances, materials, apparatus and devices that can be used for diagnostic and therapeutic purposes in medicine. MEIS is one of the most innovative and dynamic industries with more than 300,000 products on the market. In this context, MEIS includes a wide range of products and technologies. For this reason, the products in the sector range from traditional products such as bandages and syringes to advanced nano technology and cell engineering products.

MEIS is the area with the highest innovation intensity and R&D activities. In this case, research in the field of biomedicine requires a large amount of scientific resources and a well-trained workforce. In this context, MEIS works closely with the following basic technology areas, and sometimes products are produced with a combination of these sectors.

- Biomedical Technologies
- Electronics

- Information and Communication Technologies
- Nanotechnology
- Advanced Material Technologies
- Genetics

MEIS is one of the leading industries that provide basic inputs for the health sector. The sector is composed of many sub-branches among itself, and various economic activities are divided into different categories according to the statistical classification standards. When considered in general, the products of MEIS are all kinds of tools, instruments, devices, which can be supported by pharmacological, chemical, immunological or metabolic effects that provide the diagnosis, treatment, monitoring and control, mitigation or cure of a disease, injury, disability on humans. device, accessory or other materials.

MEIS, NACE Rev. 1.1. According to the classification, it consists of 5 sub-sectors at the triple level and 5 sub-sectors at the quadruple level and is classified as follows:

Table 4.3. Classification of MEIS According to NACE Rev 1.1

33 Medical Instruments; Watch Manufacturing With Precision And Optical Instruments	331 Manufacture of medical and surgical equipment and orthopedic instruments.	3310 Manufacture of medical and surgical equipment and orthopedic instruments.
	332 Manufacture of instruments and apparatus for measurement, control, testing, navigation and similar purposes; (excluding process control equipment used in industry).	3320 Manufacture of instruments and apparatus for measurement, control, testing, navigation and similar purposes; (excluding process control equipment used in industry).
	333 Manufacture of industrial process control equipment.	3330 Manufacture of industrial process control equipment.
	334 Manufacture of optical instruments and photographic equipment.	3340 Manufacture of optical instruments and photographic equipment.
	335 Clock manufacture	3350 Clock manufacture

(Source: TÜİK, 2013)

Different classifications can be made for MEIS. Espicom Business Intelligence, MEIS, which has a wide product range from disposable consumables (syringe, cotton, etc.) to surgical instruments and devices; medical consumables sector, medical diagnostic and imaging devices sector, medical dental instruments and devices sector, medical orthopedic instruments and devices sector and medical therapeutic devices sector into 5 different classes (sub-sectors).

Table 4.4. MEIS Classification

Medical Consumables and Surgical Instruments Sector	• Wound care products • Syringe, needle and catheter • Surgical instruments
Medical Diagnostic and Imaging Devices Industry	• Electronic diagnostic devices • Radiation therapy devices • Imaging instruments and parts
Dental Instruments and Devices Sector	• Basic dental instruments and devices • Dental furniture
Medical Orthopedic Instruments and Devices Sector	• Splints and fracture apparatus • Artificial joints • Prostheses
Medical Therapeutic Devices Industry	• Portable devices • Mechanical treatment devices

(Source: Matyushenko et al., 2016)

- Medical Consumables Sub-Sector

It is a disposable medical product used for therapeutic purposes. It is not a pharmaceutical and its costs are low. Produced consumables; syringes, blood bags, blood and blood product exchange sets, blood pressure transducer, materials used in cardiovascular surgery (tubing set, cardioplegia sets and cannulas, drainage), intraket, stent, catheter and probes, surgical threads, surgery and examination gloves, gauze and cotton, orthopedic prostheses and repair materials, x-ray bath solutions and dentistry repair materials.

Wound Care Products: By focusing on both acute and chronic wound care, it improves patient quality of life and reduces the cost of care and treatment.

Syringe, Needle and Catheter: They are vehicles used to deliver a drug to the body through muscle or vein.

Surgical Instruments: They are tools used for surgical interventions and treatments.

- Medical Diagnostic and Imaging Devices Sub-Sector

They are the devices used by the physician to determine the cause of the patient's complaint and to resolve the complaint.

Electronic Diagnostic Tools: They are hand electronic tools or computer systems used in the diagnosis of diseases.

Radiation Therapy Devices: It tries to treat diseases such as cancer by using waves above a certain frequency. For example, magnetic resonance devices use radio waves, computed tomography devices use very high-speed x-rays.

Imaging Tools and Parts: It is the examination of the patient's body region with various means for diagnostic purposes. It is a type of diagnostic method.

- **Medical Dentistry Instruments and Devices Sub-Sector**

This class includes the manufacture of laboratory instruments, medical and surgical instruments, surgical instruments and equipment, dental instruments and appliances, orthodontic products, dentures (dentures) and orthodontic appliances. The manufacture of medical, dental and similar furniture for specific purposes, such as dental chairs with hydraulic function, is also included in this class.

Basic Dental Instruments and Devices: Surgical fabric and sterile thread and cloth, dental fillings and cements (excluding glues used in dental treatment), dental waxes and other plasters used in dental treatment, bone cement laboratory ultrasonic cleaning machines of dental laboratory ovens, prosthetic teeth made in dental laboratories, bridges, bone supports and screws, syringes, needles, probes, cannula (tubes and pipes for drawing water from the body or injecting drugs into the body), etc. all tools and machines.

Dental Furniture: Furniture used in medicine, surgery, dentistry or veterinary medicine, operating tables, examination tables, mechanically adjustable hospital beds, dental chairs are among the dental furniture.

- **Medical Orthopedic Instruments and Devices Sub-Sector**

It is equipment or devices used to replace any missing part of the body to facilitate the mobility of any disabled person.

Splints or Broken Parts: It covers products such as crutches, wheelchairs, patient safety vests, break belts, walking bars, motorized wheelchairs and parts, gels, insoles.

Artificial Joints: It covers products such as heel supports, cross and joint supports, cages.

Prosthesis: It covers artificial limbs, artificial eyes, artificial nose and ears, prosthetic repair kits, artificial kidney machines, spare parts and accessories.

- **Medical Therapeutic Devices Sub-Sector**

They are a variety of products produced to help people with physical illnesses.

Portable Devices: Pacemakers, artificial kidney machines, spare parts and accessories, hearing aids, urine collectors and accessories.

Mechanical Treatment Devices: Respirators, dialysis machines.

On the other hand, medical device legislation in Turkey is regulated by regulations issued by the Ministry of Health in line with EU legislation.

The Medical Device Directives (TCD), which the EU put into effect as legal regulations regarding medical devices, set the standards for the safety, efficiency and quality of medical devices. The CE mark within the scope of EU Directives is a mandatory mark for all medical devices, except for personalized prostheses and devices needed in clinical studies, and is a sign that shows the conformity of the device with the necessary basic conditions. All companies in the medical device sector are required to establish quality systems and certify this situation in order to comply with the EU process by fulfilling the legal requirements in order to be able to operate.

4.2.5. Clean Environment Technologies (Cleantech-CET)

Within the framework of sustainable and green growth approaches, the concepts of clean production and eco-efficiency have come to the fore. R&D and innovation activities, which also take into account the environmental factor, are expected to increase towards clean technologies and green products with high added value (TTGV, 2014).

The worrying decline in global biodiversity shows that the lives of both humans and other living species are at risk. According to the Living Planet Index research, if measures such as supporting sustainable development, protecting biodiversity, fulfilling the global responsibility for climate change, reorganizing our food and energy systems are not taken now, in half a century, that is, between 1970 and 2020, fish, birds, mammals, amphibians, reptiles will be lost. It is revealed that a two-thirds decrease in the global population can be witnessed (Cleantech Group and WWF, 2017).

Problems such as global warming and climate change, increased consumption of raw material resources, non-renewable energy consumption, water scarcity, increase in air pollution, increase in waste production, energy and food security are the main global environmental problems. In the face of these global problems, it is considered very important to use resources and energies efficiently within the framework of environmentally friendly production principles, to turn to clean and renewable energy sources, to switch to clean environmental technologies, to try to reduce emissions that cause climate change, and to keep up with the increasingly intense competition.

Uncontrolled abuse of water, air and all resources in the global world leads to irreversible deterioration. Long-term and systematic policies are required to minimize the

damage of toxic substances such as organic chemicals, heavy metals, radioactive materials, biological wastes, limit harmful production processes and promote safer alternatives. These problems are now not only local but rapidly becoming global problems (Koltuniewicz and Drioli, 2008).

Clean environmental technologies adopt a mission to protect the environment, such as increasing the use of clean energy and encouraging the production and implementation of environmentally friendly solutions. Companies that adopt clean environment technology create value by using renewable energy sources and producing less waste in any product, service or process (Bjornali and Ellingsen, 2014).

By embracing clean environmental technologies, companies are creating ways to manage cities' traffic and public transport, reduce emissions and save fuel in real time. Clean environmental technologies now go far beyond energy or economy. Thanks to clean environmental technologies, smart cities are formed, water and foodstuffs are protected, new substances are created and waste generation is reduced (Greenwood and Qaiser, 2017).

Clean environmental technologies mean the effective use of natural resources and energies, more innovative products, services and technologies, comparable and lower costs, high performance and less pollution and less garbage. It covers topics such as clean environmental technologies, clean energy and energy storage, use of green materials, energy and resource efficiency, sustainable agriculture, sustainable transportation, water, soil and air quality, recycling and waste (ADB, 2016).

Cleaner production is defined by the United Nations Environment Program (1990) as the regular application of a preventive environmental strategy to production processes, products and services, increasing efficiency and reducing risks to the environment and people. With clean production practices, water and energy are used more efficiently, productivity and competitiveness increase, costs decrease, environmental impacts and ecological footprints decrease.

The global clean technology industry is witnessing a crucial moment. The Paris climate change agreement, which entered into force in October 2016, established an international commitment to improve the global economy. It creates a renewed focus for cities and countries looking for ways to grow their economies while using less resources, creating less pollution and waste. Today, it is stated that there is a strong set of economic

and political drivers to create a continuous demand for clean technologies around the world (Greenwood and Qaiser, 2017).

It encompasses knowledge-intensive products and services that improve operational performance while reducing productivity and efficiency, cost, input resource use, energy consumption, waste and pollution; It includes practices that focus on the pervasive market economy, sustainability and the opportunity offered by returns.

Clean technologies cover verticals in the following 14 categories, including power generation, water treatment, efficient production techniques (TTGV, 2014).

Clean technologies cover verticals in the following 14 different sub-categories; including:

- ✓ Energy efficiency
- ✓ Advance Materials and Production Techniques
- ✓ Climate and Environment Quality
- ✓ Alternate Technologies without Harming for Ozon
- ✓ Energy Storage Technologies
- ✓ Recycling and Waste Management
- ✓ Smart Agriculture
- ✓ Biomaterials and Bio-fuel
- ✓ Sustainable Transportation
- ✓ Smart Grid Energy Distribution
- ✓ Solar Systems
- ✓ Wind Technologies
- ✓ Water Technologies
- ✓ Others

- Global Clean Environment Innovation Index

As seen in the Figure below, the Global Clean Environment Innovation Index is divided into two, the first being Innovation Inputs and the second being Innovation Outputs.

Table 4.5. Ranking of Countries By Global Clean Environment Innovation Index Criteria

Author	2017 Source	Input to Innovation	Outputs of Innovation	General Innovation Drivers	Cloantoch-specific Innovation Drivers	Emerging Cloantech Innovation	Commercialised Cleantech Innovation
Denmark	4,07	3,80	4,34	3,04	4,55	3,49	5,19
Finland	3,96	3,25	4,66	2,80	3,69	6,19	3,13
Sweden	3,86	3,36	4,35	3,69	3,03	4,73	3,98
Canada	3,76	3,30	4,23	3,29	3,30	5,13	3,33
USA	3,59	3,30	3,88	3,43	3,18	5,46	2,31
Israel	3,56	2,94	4,19	2,70	3,18	5,96	2,41
UK	3,37	2,97	3,77	2,92	3,02	4,97	2,58
Germany	3,33	2,47	4,18	2,31	2,64	4,58	3,78
Norway	2,90	3,23	2,58	2,63	3,82	2,21	2,95
Switzerland	2,89	3,04	2,74	3,14	2,94	2,68	2,79
South Korea	2,86	2,19	3,54	2,35	2,03	3,55	3,53
Japan	2,75	2,51	3,00	2,49	2,53	3,50	2,49
France	2,75	2,30	3,20	1,93	2,67	4,64	1,75
Singapore	2,71	2,04	3,39	2,78	1,30	2,43	4,34
Netherlands	2,71	2,71	2,70	3,07	2,35	2,58	2,82
Ireland	2,64	2,63	2,64	2,92	2,35	3,41	1,87
Austria	2,52	2,56	2,49	2,39	2,73	1,81	3,17
China	2,31	2,44	2,18	2,20	2,68	2,25	2,11
Belgium	2,26	2,29	2,23	2,12	2,45	1,94	2,53
Australia	2,04	2,77	1,31	2,86	2,68	1,51	1,11
Slovenia	1,78	1,64	1,93	1,53	1,75	1,43	2,43
New Zealand	1,74	1,87	1,61	2,59	1,15	0,70	2,52
Hungary	1,65	2,07	1,22	1,54	2,61	0,78	1,65
Poland	1,63	1,92	1,33	1,62	2,22	0,99	1,68
Spain	1,59	1,48	1,70	1,56	1,39	1,28	2,12
Italy	1,47	1,84	1,10	1,45	2,23	0,68	1,54
Portugal	1,41	1,74	1,08	1,65	1,84	0,34	1,82
Czech Republic	1,37	1,38	1,36	1,74	1,01	0,64	2,08
India	1,22	1,76	0,68	1,30	2,21	0,83	0,54
Brazil	1,20	1,52	0,88	1,74	1,29	0,24	1,51
South Africa	1,13	1,32	0,94	1,02	1,61	1,00	0,87
Mexico	1,08	1,12	1,04	1,20	1,03	0,12	1,96
Turkey	1,07	1,53	0,61	2,08	0,98	0,10	1,12
Greece	0,90	0,85	0,94	0,75	0,95	0,62	1,26
Romania	0,87	0,91	0,83	1,02	0,80	0,50	1,16
Argentina	0,84	1,32	0,36	1,33	1,31	0,09	0,63
Bulgaria	0,83	1,10	0,55	0,96	1,24	0,24	0,87
Saudi Arabia	0,67	1,24	0,10	2,37	0,11	0,14	0,06
Russia	0,65	0,73	0,57	0,80	0,66	0,78	0,37
Indonesia	0,60	1,11	0,09	1,21	1,02	0,00	0,18

(Source: Global Cleantech Innovation Index, 2017: 13)

As seen in Table 4.5, the total score of 2017 for each country is calculated by calculating the average of the sum of innovation inputs and innovation outputs. For example, Turkey's innovation input score is 1.53, innovation output score is 0.61. The mean of both scores ($1.53+0.61=2.14/2=1.07$) is calculated as 1.07.

Innovation inputs are related to whether innovation is created (improving technology supply) while innovation outputs are related to the ability to commercialize innovation.

Innovation inputs and outputs are each determined by four equally weighted sets of indicators.

According to the Global Clean Environment Innovation Index, Denmark (4.07) ranks first with the best performance, while Finland (3.96) and Switzerland (3.86) come second and third. While Canada (3.76) and America (3.59) are in the first, fourth and fifth places, Turkey is in the 33rd place with 1.07 points. When the clean environment technology innovation commercialization scores of Denmark, which ranks first (5.19), is compared with other countries, it is observed that the difference is quite clear.

4.3. ANALYSIS OF LIFE SCIENCES SECTOR IN WORLD

Developing technology creates highly transformative opportunities for the life sciences industry. Continuous manufacturing technology and robotic process automation (RPA) shorten production times and increase process efficiency. The physical and digital worlds collect massive amounts of data. Continuous access to data from the Internet of Things (IoT) is provided in real time. These enormous developments make it inevitable that the demand for people who can create new roles in the life sciences is increasing (Deloitte, 2018).

Life sciences sector is closely related to biotechnology as it includes all sciences related to plants, animals and humans. As of 2012, the fields of activity of more than 1,000 life science companies established in Israel are medical devices, biotechnology and medicine. The exports of these companies amounted to 8.9 billion USD in 2011. Israel is a pioneer in stem cell research, first in the world in terms of scientific research institutes and qualified manpower, first in the world in medical device patents per capita, fourth in biopharmaceutical patents, and first in R&D investments. In the field of life sciences, Israel is home to the biopharmaceutical and medical device industries. It is a center of excellence in stem cell research. It is the country that publishes the most in this field after America (Özdemir and Çakar, 2013).

China and India will have the highest healthcare spending growth globally through 2020 as their economies grow as they currently seek to expand their underdeveloped healthcare systems. Between 2010 and 2020, China is expected to increase health expenditures by 66%, while this rate is estimated to be 40% for India. It is thought that urban health inequalities will increase in fast-growing centers and mega-cities. In

addition, it is observed that the center of gravity of the global economy has shifted to Brazil, Russia, India and China (BRIC). Markets such as Mexico and Turkey will begin to play an increasingly important role (Kückelhaus et al., 2013).

These countries are home to half of the union's biotechnology firms. Thanks to the European-wide funds/supports that have been created and continue to be created in recent years, significant progress is expected in this field of technology. The strategy, titled Bio-economy for Europe, launched in 2012; investing in R&D, innovation and skills, stakeholder engagement and strengthened policy interaction; It consists of three main axes such as the development of markets and competitiveness. In a sense, the strategy has emerged as a result of the EU's 2020 Climate Change targets (T.C. Ministry of Science, Industry and Technology, 2015).

The cosmetics sector is, on the other hand, the most competitive sector of the consumer market and consists of large enterprises, many of which are affiliated with multinational partnership companies. One of the most important features of the cosmetics industry is the competition between companies (PAGEV, 2017).

When comparing the selected countries in the Life Sciences Competitiveness Indicator (2016), the data presented are listed as follows (Freeman, 2016).

- The order of the number of people employed in the manufacture of medical technology products is Germany, France, Italy, Netherlands, America, Switzerland, Ireland, Poland,
- Ranking of exports of medical technology products: Germany, Switzerland, Belgium, America, France, Netherlands, England, Ireland, Italy, Spain, Japan,
- The ranking of countries with direct investment projects in life sciences is America, England, Germany, Ireland, France, Japan, Switzerland, Italy,
- USA, Germany, Belgium, England, France, Switzerland, Italy, Netherlands, Japan, China, Spain, Ireland,
- Number of Graduates in Science, America, England, France, Japan, Switzerland,
- Ranking of government health research and development expenditures America, England, Germany, Japan, France, Spain, Italy,
- The order of share of life sciences academic citations is America, England, Germany, China, Canada, France, Japan, Italy.

Being able to move from an unsustainable economic growth model to a sustainable growth model based on the principle of balanced use of natural resources in the future, and use sustainability as the driving force of innovation. In summary, organizations that can transform the environment, population, resource and economic problems we face into opportunities will be able to gain competitive advantage.

As in every field, the final word in this matter will be the consumers, who are increasingly choosing environmentally friendly, sustainable products and services with increasing environmental awareness. In this context, the longevity of traditional forms of production will be determined by the limits of our planet's resources and the conscious choices of consumers.

The biotechnology sector continues to progress towards becoming a clinical science supported by data analysis. Therefore, it is foreseen that biotechnology companies should make growth sustainable by adopting new technologies and innovations related to the business model. In the report, where it is stated that biotechnology companies attracted 51.1 billion US dollars of financing in 2016, it is emphasized that this amount is the third highest level of financing for the sector on an annual basis. 79 mergers and acquisitions with a total value of US\$ 94.4 billion were realized in the biotechnology sector in 2016. It is stated that these figures are the second highest level recorded by the sector in terms of value and volume. R&D expenditures, on the other hand, increased by 12% compared to the previous year and reached a record level of 45.7 billion USD (EY, 2017).

Increasing costs of R&D and clinical research, especially in health biotechnology, have forced large companies to use developing countries as R&D and production bases. The contribution of multinational companies operating in the biopharmaceutical sector to the growth trend in biotechnology observed today in Far East countries such as China and Singapore is at a level that cannot be underestimated. The main factors that attract investments in biotechnology are the presence of a qualified workforce, strong intellectual property rights protection, the presence of effective universities and research centers, the growth potential of the domestic market and the potential for clustering (T.C. Ministry of Science, Industry and Technology, 2015).

The positive results of the policies and strategies mentioned in this field are evident in international R&D and innovation indicators. As of 2014, the performance of 54 countries was measured in the score card study, which is an evaluation of the efforts of countries

in biotechnology innovation. The performance of each country in biotechnology was evaluated in seven categories. Accordingly, performance indicators were determined in categories such as productivity, R&D intensity, protection of intellectual property rights, supporting entrepreneurship, education/workforce, institutions/organizations, policy and stability. In the evaluation made for 2014, the USA ranks first, as in the ratings made in previous years and in the lists published by other organizations. The USA is followed by Singapore, Denmark, Australia and Sweden, respectively.

In developing countries, the importance of branches of science that can contribute to medical device technologies such as medicine, biomedical, electronics, mechanics, computer, software engineering and mechatronics engineering is increasing. In the medical device sector, it is of great importance to establish the appropriate training infrastructure for the training of expert and competent personnel.

The fact that there is always the possibility of not taking the first step in the market due to the timing difference after a long time spent on innovative treatment investments for R&D in the industry can erode the innovation appetite in the pharmaceutical industry. However, despite all these negative factors, one of the factors that brought the most important companies of the sector to their current size is the momentum they have created in the world market with the generic drugs they produce.

The biotechnology industry has emerged in the last four decades as a result of the great developments in the disciplines of biochemistry, molecular biology, genetics and bioengineering since the middle of the 20th century. The industry developing in the sub-branches of health biotechnology, agricultural biotechnology and industrial biotechnology is remarkable. Increasingly successive developments in the scientific field are rapidly reflected in the industrial field. The biotechnology industry, especially in advanced industrial and information societies, is experiencing a great vitality in research, product development, process development and production. A strong revival starting from the first years of the 21st century draws attention in developing countries in South America and Asia, especially in China, India and Brazil (Tunçgenç, 2014).

Since the mid-2000s, many countries have begun to see biotechnology as an opportunity for economic growth and global competitiveness. Although the USA is seen as the leader of the biotechnology sector in the world, the sector has been growing rapidly

in countries such as Ireland, Israel, Singapore, South Korea, China and India in recent years.

Most of the business in the biotechnology industry still originates from the activities of companies in the USA and the European Union. However, in countries with developed economies, the biotechnology market is somewhat closer to saturation and the overall growth rates in these countries are lower. On the other hand, the growth rates of the economies of developing countries are relatively higher, and accordingly, living standards are developing faster and access to health services becomes widespread. It is predicted that these developments will lead to the shift of biotechnology activity areas to developing countries in the next five years (Tunçgenç, 2014).

From developing smarter and more efficient models in production processes, from R&D to monitoring the field studies of pharmaceutical representatives, digitalization is among the plans of the sector.

Many innovations in the healthcare system directly affect the pharmaceutical industry. Today, even surgeries performed with robotic systems are of interest to the dynamics of drug use in the health sector. In addition to treatment, important steps are being taken in the field of preventive medicine. The entire healthcare sector, especially healthcare professionals, tends to benefit from the guidance of pharmaceutical companies. The pharmaceutical industry, which is the opinion leader of the total health sector, should also consider producing more information among its targets.

There is a shift towards biotechnological drugs in the pharmaceutical industry. The biotechnological pharmaceutical market, whose global size is around 220 billion dollars, is growing rapidly also in Turkey (Ekonomist, 2017).

Biotech drugs are defined as molecules produced using living organisms. These types of drugs show a rising trend around the world starting in the late 1990s. 48 of the 100 best-selling drugs in the global pharmaceutical market are biotechnological drugs. The global market size of these drugs is 220 billion dollars. Today, 20 percent of the world pharmaceutical market consists of biotechnological drugs. It is estimated that the market size in this field will reach 80% of biotech products in all pharmaceutical diagnostic products by 2030.

Today, it is thought that new technologies will be used in the development of new cosmetic products and innovations in the field of medicine will be transferred. The

products that are expected to be produced the most in this field are anti-aging products. For this reason, it should be foreseen that the active ingredients and formulation forms to be used in cosmetic product development and the technologies to be used will play an important role in determining the efficacy and safety of the cosmetic product (Yapar and Tanrıverdi, 2016).

The USA, Western Europe and Japan are the prominent countries in the MEIS market in terms of their size and R&D activities. The fact that the companies producing MEIS in these countries also operate in other areas of the industry contributes to the R&D infrastructure for the products. The fact that the USA is a leader in the medical device market is a result of the importance it attaches to innovation and R&D activities. Medical device production in developed countries is carried out within the framework of high standards as required by Good Manufacturing Practices (GMP), and better inspection mechanisms make the sector even stronger (T.C. Ministry of Health, 2017).

In general, multinational companies such as General Electrics (United States of America), Siemens (Germany) and Philips (Netherlands) play the leading roles in the sector. Although it is difficult to measure, it is estimated that these companies have a share of around 90% of the total sectoral sales.

Clean technologies have the potential to create a wider market than environmental technologies. In this sense, it envisages a more systemic approach to solutions, and it is rapidly developing as a point where the fields of advanced materials and nanotechnology, information technologies and internet and clean biotechnology converge. Clean technologies also contain an important motivation factor for entrepreneurship with the perception of economic gain they create. In many respects, it is seen as the greatest employment and wealth creation opportunity of the 21st century, and considered as the critical technologies of the post-industrial society.

Today, people are much more conscious than before about their genetic history, current illnesses or what they might encounter in the future. Quantified self, that is, individuals who monitor/measure themselves, those who follow their own health, are determined to protect their health, and spend more time, energy and money to be healthy and stay healthy, have very high expectations for benefiting from health services. They benefit from the necessary information and data to get the best treatment at the most appropriate place at the lowest cost (Taylor et al., 2015: 4).

According to the World Health Statistics Report, it is stated that life expectancy in the world has increased by five years in the last fifteen years, and the life expectancy of a woman born in 2015 will be 73.8 years and that of men 69.1 years. Among the countries, women living in Japan have the longest average life expectancy of 87 years, while Switzerland ranks first with an average life expectancy of 81.3 years for men. The average life expectancy in Turkey is stated as 75.8 years. The shortest life expectancy is seen in men and women living in Sierra Leone, with an average of 50 years. It is stated that while a newborn lives an average of 80 years in 29 high-income countries, the average life expectancy of a newborn in 22 sub-Saharan African countries is less than 60 years. Due to the developments in the treatment of diseases such as AIDS and malaria, the increase in life expectancy is observed in Africa with a rate of 9.4.

- Average annual growth rate in healthcare spending between 2014 and 2018, 2.4% in western Europe, 4.9% in North America, 8.1% in Asia and Australia, and 1% in the Middle East and Africa. 8.7; while the average life expectancy has increased by 5 years since 1990 and reached 80 years in OECD countries in 2012, the record was 84 years in Japan, 81 in England, 79 in America, 75 in China and 66 in India. The population over 65 will reach approximately 580 million by 2018 - 10% of the world's population. 1 in 4 Japanese, 1 in 5 Western Europeans, and 1 in 10 Chinese will be over 65 (Taylor et al., 2015: 4).

Although the USA is the largest market and leading consumer of biotechnology products in the world, it alone carries out 70% of the research and development in the world. It is home to four of the five largest medical device companies in the world and seven of the ten leading companies. There are more than 5.5 million scientists, engineers and technicians in the USA, 1.3 million of whom are directly related to the biological sciences, and an additional 5.8 million employees are employed in different biotechnology-related sectors. The medical device market (excluding dental and optical medical devices) in Italy, which is the second in the world among health systems in the World Health Organization (WHO) ranking, is about USD 7.7 billion. In Italy, there is a strong medical production base with about 700 companies, manufacturers of medical, surgical and dental instruments, orthopedic and prosthetics, and the sector employs approximately 30,000 people (T.C. Ministry of Health, 2013).

Japan's medical technology industry has doubled in the last 25 years until 2008, reaching a size of 19 billion Euros. Japan identifies life sciences as one of the top four priority areas. In this context; development of revolutionary disease prevention and early detection methods for life science innovation in the Master Plan; It is aimed to apply safe and high-efficiency medical treatment methods and to improve the quality of life of the sick, elderly and disabled population.

Life sciences are closely related to biotechnology as it includes all sciences related to plants, animals and humans. As of 2012, the fields of activity of more than 1,000 life science companies established in Israel are medical devices, biotechnology and medicine. The exports of these companies amounted to 8.9 billion USD in 2011. Israel is a pioneer in stem cell research, first in the world in terms of scientific research institutes and qualified manpower, first in the world in medical device patents per capita, fourth in biopharmaceutical patents, and first in R&D investments. In the field of life sciences, Israel is home to the biopharmaceutical and medical device industries. It is a center of excellence in stem cell research. It is the country that publishes the most in this field after America (Özdemir and Çakar, 2013:120).

When comparing the selected countries in the Life Sciences Competitiveness Indicator (2016), the data presented are listed as follows (Freeman, 2016: 5-27):

- The order of the number of people employed in the manufacture of medical technology products is Germany, France, Italy, Netherlands, America, Switzerland, Ireland, Poland,
- Ranking of exports of medical technology products is Germany, Switzerland, Belgium, America, France, Netherlands, England, Ireland, Italy, Spain, Japan,
- The ranking of countries with direct investment projects in life sciences is America, England, Germany, Ireland, France, Japan, Switzerland, Italy,
- Number of Graduates in Science is America, England, France, Japan, Switzerland,
- Ranking of government health research and development expenditures is in America, England, Germany, Japan, France, Spain, Italy,
- The order of share of life sciences academic citations is America, England, Germany, China, Canada, France, Japan, Italy.

It is also stated that by 2020, a new language will emerge in health services and life sciences. Below is the Life Sciences 2020 Glossary of Terms in the Table.

Table 4.6. Glossary of Life Sciences 2020 Terms.

Term	Potential 2020 Definition
Advanced wearable technologies	Contact lenses, pacemakers, or other implants with measuring/tracking functionality. It may be possible to add 'value-adding' features to contact lenses, such as 'zoom or night vision'.
Trainer supporting clinical professionals	It used to be called 'medical sales agent'. Now this position acts as the unifier holding the local health service together and providing information and training to local clinicians.
Global business services officer	It is the person who manages all support functions to support global operations. In addition to managing the company's analytical assets, it also manages complex supplier partnerships that support global virtual support functions.
Participant patient	It is a new type of patient. He is knowledgeable about his own health. He is knowledgeable about current drugs and trials in progress and is aware of his rights within the healthcare system.
Result-oriented healthcare collaborations	Pharmaceutical company in collaboration with the health care system – health care providers such as payers or hospitals that directly or indirectly address the outcomes of patient groups.
Intensive care specialists	Medical officer who specializes in the treatment and care of critical health cases.
Moore's Law	An observation made by Gordon Moore in 1965. Gordon Moore recorded that the number of transistors (electronic circuit element conductors) per area in integrated circuits in computer memory has doubled every year since they were discovered.
Multi-channel relationship management	Multi-channel marketing is no longer enough. Pharmaceutical companies also use different channels to manage relationships with each clinician. This ensures better service to both clinicians and patients, and also ensures that everything is done in compliance with the law.
Nano-particle pill	It is a pill containing nano-particles. This pill enters the bloodstream to ensure targeted administration of the drug or (if used with a wrist-worn sensor) detects changes in a person's biochemistry.
Network Based R&D	R&D is now about accessing and benefiting from other people's ideas. A network management approach that includes all stakeholders, from academia to promising startups, is critical.
Pharmacogenomics	Studies of how genes influence a person's response to medication.
Self-monitoring individuals (Quantified self)	The consumer who monitors his health and quality of life from many dimensions using many sensors, from smartphones (such as glucose meters) to medical devices.

(Source: Taylor et al., 2015).

4.4. ANALYSIS OF LIFE SCIENCES SECTOR IN TURKEY

Turkey is a candidate for becoming a pharmaceutical, health and life sciences center with its large population, research hospitals, low investment costs and geographical proximity to rapidly growing markets. By 2023, Turkey aims to become one of the world's top ten economies in healthcare and plans to establish a drug valley in Istanbul (Economist, 2017).

The life sciences and health sector are considered to be strategically important sectors in Turkey, especially considering their social and economic impacts. With the Health Transformation Program implemented by the Ministry of Health in 2004, Turkey has demonstrated its commitment to health reforms. While these reforms marked important developments in Turkey's health system, these reforms were also supported by investments in R&D and innovation in the health sector.

Some important data and figures regarding the life sciences and health sector in Turkey are as follows:

In 2015, the Turkish pharmaceutical market grew by 15.5% compared to 2014 and reached a value of 16.8 billion TL. In the same period, unit sales increased by 6.7% to reach 1.95 billion.

According to the report of IMS Health, Turkey is expected to rise to the 17th rank in 2019 (IMS Consulting Group, 2014).

There are approximately 300 pharmaceutical companies in Turkey. 12 of 67 production facilities in compliance with international standards and 3 of 12 raw material production facilities belong to multinational companies. Approximately 30,000 people are employed in the sector and over 11,500 products are produced. Turkish pharmaceutical manufacturers export to more than 170 countries; a large part of this trade is to EU, MENA and CIS countries.

The main factor driving the demand for the health sector in Turkey is the growing young population. Favorable long-term macroeconomic conditions and better access to drugs will continue to increase demand for this sector and attract foreign pharmaceutical companies. The health sector in Turkey is expected to make a big leap forward (Ekonomist, 2017).

The Ministry of Health plans to open organized health zones that include hospitals, rehabilitation centers, thermal tourism facilities, nursing homes, health technoparks and R&D centers (T.C. Ministry of Health, 2013).

The Turkish government has also put on its agenda an ambitious public-private partnership (PPP) program in health. According to experts, Turkey is the second most attractive global market for medium and long-term PPP projects (T.C. Ministry of Health, 2013)

The Turkish healthcare sector offers numerous investment opportunities, thanks to its remarkable growth potential. While the Ministry of Health allocates a budget of approximately 100 billion TL for financial leasing payments for the Public-Private Cooperation Program, free health zones, health tourism and e-health areas offer similarly attractive investment opportunities.

It is aimed to make Turkey a global pharmaceutical R&D and production base. The Turkish government aims to increase its R&D spending to 3% of the gross domestic

product. As expectations for better quality and more accessible health services increase in parallel with the improvement in economic welfare, it is estimated that per capita health expenditures in Turkey will nearly triple by 2023 and reach 2000 USD (T.C. Ministry of Health, 2013).

Turkey plans to further enlarge and transform the health sector by increasing the local production of medicines to 60% by 2023. Considering that Turkey is highly dependent on foreign sources in terms of biotechnological drugs, trained manpower and local production capacity in life sciences and biotechnology are extremely important to prepare Turkey for the future in this field. There is a serious potential in these areas in Turkey, but different sectors should act together and cooperation should be made in this area in order to make progress.

According to Economic Policy Research Foundation of Turkey (TEPAV), the Turkish economy has undergone a significant transformation in the last 30 years, with both structural factors and the change in production and export composition. In this process, the most important growth source of the economy was the increase in productivity due to migration from rural to urban areas. Today, Turkey's urbanization rate has approached 75%. It does not seem possible anymore to sustain the productivity increases that will make Turkey grow with the labor movement from agriculture to services and industry. From now on, it is necessary to ensure growth not with the productivity increases that come with migration, but with the increase in productivity within the sector. For this reason, Turkey now needs a new growth strategy that aims to increase productivity in sectors with structural transformation (GE, 2017).

Today, the cosmetics industry, and especially cosmetics retailing, is one of the most dynamic and functioning commercial sectors all over the world and especially in Turkey. The size of the cosmetics market has a turnover of 120 billion dollars. The growth rate of the cosmetics industry in the world is 5% per year, while the growth rate in Turkey is around 10%.

The Turkish cosmetics market consists of two main segments:

- The product market with the feature of delaying or stopping aging: Anti-aging UV protective creams that protect people from UV rays, reduce the appearance of cellulite on the skin, appeal to all age groups, both men and women, who want to look younger.

- **Fragrance Market:** Young people who started with youth movements in America and Europe and who want to grow in the age range of 15-25 constitute the target audience (ITA, 2016).

It is predicted that the MEIS market growth rate between 2013 and 2020 will be 5% annually and sales will increase from 363.8 billion dollars to 513.5 billion dollars. For example, it is predicted that in-vitro diagnostic devices, which surpass cardiac and diagnostic imaging systems with 71.6 billion dollars, will constitute the top step of the industry in 2018, and neurology devices will become the fastest growing area in the sector with an annual increase of 9.8 billion dollars with a rate of 7.1%. It is estimated that the world population over the age of 65, which was 7.8% in 2012, will reach 20% in 2030. In the market analysis and forecast for the years 2013-2023, it was stated that the increase in the aging rate will significantly affect the MEIS industry in the coming years. In addition, as a part of the health reform in the USA, which constitutes the largest part of the global market, it is thought that the coverage of more than 30 million uninsured people will lead to further growth of MEIS in the future (T.C. Ministry of Health, 2017).

Istanbul is a city that always attracts attention with its 8000-year history. The most important factor that makes Istanbul attractive is that it is located in a very strategic geography. With a population of approximately 16 million, Istanbul is larger than the populations of some countries in the European Union. In addition to the population size, the market volume it creates is appetizing, which causes the market share to increase day by day. Its human and technical infrastructure, geographical location, being a cultural and financial center, experiencing an intense industrial production, development of the service sector make the city dynamic and diversify the services in the city (Erbaş, 2018).

There is a high production potential in the health field in the Istanbul region. One of the steps to be taken in order to develop this potential more rapidly is to approve the compliance of innovative products and services developed by companies and research centers working in the field of life sciences with international quality standards. Such services can still be partially provided in our country and the relevant laboratories are scattered in different regions; for this reason, there is often a need for service procurement from abroad. Accredited, reliable test, analysis and testing service providers are expected to serve both locally and globally by reaching a very large customer base throughout Turkey as well as in the Istanbul region in the medium and long term.

CHAPTER V: METHODOLOGY OF RESEARCH

A research methodology is a general framework of how a particular research is conducted, what steps it consists of. It describes the techniques or procedures used to identify and analyze information about the relevant research topic. In this section, each researcher undoubtedly makes certain methodological choices and justifies why those choices were made. This section also evaluates the reliability and validity of a study based on the appropriateness and effectiveness of the procedures used.

In this section, the designs related to the research method and all the approaches used throughout the study are discussed in detail. These are respectively; philosophy of the research, its importance, its conceptual framework, the empirical approach of the study, the gap of the research, the question of the research, the design to be followed in the research, the development of hypotheses, the development of the scale, the acquisition of data, the analysis of the data, the obtaining of the analysis results.

5.1. RESEARCH PHILOSOPHY

The developments in the economic environment with the effect of *globalization* have caused businesses to face constant *changes* and transformations at the local, national and international levels since 1990s. This change has directly affected the lives of both nations and organizations operating in different industries and sectors. With the removal of legal, cultural and geographical barriers to capital and labor, competition in the commercial and economic fields has become increasingly fierce. In this process between the *Industrial Revolution* and the period of globalization, business organizations that struggled with other competitors in national and nearby geographies were exposed to global competition in every field as these limitations suddenly disappeared (Lubit, 2001).

The fact that businesses have to adapt to the changes and transformations in the macro, meso and microenvironment, to evaluate the new opportunities offered by the environment and to eliminate the threats caused by the external environment has forced them to reconsider their activities. In this context, the ability of today's businesses to keep up with these changes in the global dimension and to survive in the competitive environment depends on the fact that these businesses exhibit a strategically *competitive*

approach in their activities and act according to the pressures brought by the environment in their organizational structures.

A different product produced with a well-planned strategy can be imitated by its competitors. Today, technology and market orientations are changing very rapidly. Therefore, a firm's strategy must change to meet these, and this change must be continuous. The concept that will create and manage this change and transformation in institutions is organizational innovativeness culture (Fleisher and Bensoussan, 2003).

Innovativeness is one of the most important tools to differentiate our work and adapt it to the entire organization. Innovativeness enables us to achieve superior performance products, services, procedures and, most importantly, competitive advantage (Acar and Acar, 2012).

Strategic orientations differ due to the planning perspective, rapid and continuous environmental changes and intense competition (Berthon et al., 2004). Strategic directions differ from strategic planning by emphasizing strategic intent and applying it to company culture. In this context, the importance of corporate culture becomes more evident and it is revealed that different factors affect the innovation rate (Nacinovic et al., 2009).

Keeping up with the change in today's business life and even developing competitive strategies to prevent change has become one of the most important issues for businesses. In this sense, innovativeness qualities and dimensions emerge as an important concept for organizations. Having innovative qualities and valuing innovation organizations are those that act proactively against change, take risks in uncertain situations, tend to be constantly competitive against their competitors, and give their employees autonomy.

It is only possible for organizations to continue their lives and to be a leader in the market and to shape their environment according to their wishes, only if the organizations have certain characteristics in today's developing and changing environment. All over the world, various characteristics and factors have been identified as key determinants of the survival of organizations, despite scant empirical results. In this context, in order for organizations to survive in ever-changing environmental conditions and to be a competitive organization and shape their environment according to their wishes, these organizations need to reveal key innovative qualities that can help them survive in the long term.

It is stated that commercial organizations aiming to remain competitive for a long time in today's economy should consider the development of innovation capabilities as a philosophy of continuous improvement towards sustainability. In addition, contemporary companies aiming at sustainability have to improve their ability to meet and satisfy their stakeholders (Sudolska and Lapinska, 2020). In this context, this research focuses on competitive strategies and it is based on the philosophy of examining the mutual effects between organizational innovation.

5.2. SIGNIFICANCE OF THE RESEARCH

Innovation of course, has a different importance for customers, employees and businesses. For customers, innovation means higher quality and better service products that improve their quality of life. For businesses, innovation means sustainable growth and development with huge profits. For employees, innovation means a new and more interesting job that requires greater mental abilities resulting in higher salaries. From the perspective of the whole economy, innovation certainly represents greater productivity and prosperity for all (Ramadani and Gerguri, 2011).

For that reason, the buzz word innovativeness has been taken great attention by researchers as well as other policy makers. Not only the issue has been attracted by researchers' seminal work, but also the topic found many empirical research opportunities in different levels and organizations.

This research is important in that it will test whether there is a relationship between the competitive strategies of business organizations and the levels of organizational innovativeness.

Schumpeter's (1934) approach, which defines innovation as new ways of doing things or better, unique combinations of factors of production, shows that innovation covers a wide spectrum of activities. The prerequisite for innovation is organizational innovativeness. The success of innovation depends on the system that makes it possible. Therefore, organizational innovativeness is a prerequisite for successful innovations (Kessler et al., 2015).

However, research is consistent with the idea that, in the long run, innovations represent the most effective way of dealing with outdoor turbulence (Han et al., 1998).

From all these perspectives; examination of the relationship between competitive strategies and organizational innovativeness has a critical importance.

First of all, organizational innovativeness scale was developed within the scope of this study. No study has been found in which five dimensions of organizational innovativeness, creativity, openness to change and innovation, future orientation, risk-taking and proactivity are discussed and examined. In this respect, the five-dimensional conceptualization of organizational innovativeness and its operational implementation is a very important study. On the other hand, when the relevant literature is examined, no research has been found that examines the relationship between the competitive strategies of business organizations and the five dimensions of the concept of organizational innovativeness and deals with it within the framework of the conceptual model. For this reason, it is thought that the model and hypotheses presented by the study will make an important contribution to the literature.

Another point to be discussed within the scope of the importance of the study is that the concepts of innovation and innovativeness are often used interchangeably and the distinction between the two is not drawn with clear boundaries. The concepts of innovation and innovativeness are not the same, innovation is a prerequisite, very few studies have separated OI from innovation. Rogers (1995) defined OI as an indicator of behavior change. Subramanian and Nilakanta (1996) emphasized the durability of OI and its ability to innovate continuously over a period of time. For all these reasons, there is a need to introduce a more productive understanding of innovation that will clarify the concept of OI and innovation and eliminate confusion, and in this context (see also Siguaw et al., 2006; Subramanian and Nilakanta, 1996).

5.2.1. Theoretical and Conceptual Framework of The Study

Conceptualization studies of innovation differ periodically. Early conceptualization¹ innovation is not limited to any one aspect of the organization, but includes all economic,

¹ Jabareen (2009) defined *the conceptual framework* as a phenomenon or network of interconnected concepts that together provide a comprehensive understanding of the phenomenon. Concepts that make up a conceptual framework support each other, express their own phenomena and form a framework-specific philosophy. Therefore; a conceptual framework is a structure in which each concept plays an integral role, a conceptual framework provides an interpretative approach to social reality, conceptual frameworks provide insight and for a *soft interpretation of intentions*. Conceptual frameworks do not predict an outcome, and can be developed and structured through a qualitative analysis process. Data sources consist of many discipline-oriented theories that have become empirical data of conceptual framework analysis (Saunila and Ukko, 2012).

technical, organizational, political, cultural and social elements of the firm (Gallego et al., 2011). Subsequent work draws attention to the link between technical change and economic development and shifts the focus to product and process innovations (Abernathy and Utterback, 1978; Barras, 1986).

The current turbulent organizational environment will continue to change at an astonishing rate and manner (Horne and Orr, 1998). Thus, competitive advantages are also temporary, regardless of whether the environment is market-oriented or technology (D'Aveni, 1994). That's why organizations should always keep their innovation agendas alive, how to respond to external change and turbulence (Lengnick-Hall and Beck, 2005). Organizations and decision makers must recognize the need for change and take appropriate, strategic measures to meet these challenges (Buliga et al., 2016).

Technology changes and new forms of organizational design are the two main strands of change driving modern organizations (Milgrom and Roberts, 1990; Roberts, 2004). The foundations of every innovative product or process are established in an organizational culture that supports the ability to learn existing competencies and generate new knowledge (Van Riel and Lievens, 2004). Because knowledge generation, learning and organizational innovation are sources of a company's sustainable competitive advantage (McAdam et al., 2010; Gallego et al., 2011).

Innovation, as an important source of competitive advantage, is a very important concept that will put institutions ahead of their competitors (Damanpour and Schneider, 2006). Any firm can more or less follow one of these competitive strategies. Two types of differentiation strategies have been established: through innovation, trying to offer new products, new technologies, an attractive package, good service, convenient locations, a good product and reliable service level, or through marketing (a brand image) (Ortega et al., 2009).

A conceptual approach to the organization of innovations and innovative studies has been developed, taking into account the construction of organizational structures and their perceptions of innovations. This approach consists of the following aspects: formulating the functions of innovation management, pointing out the specific features of innovative work, validating the proposed principles, approaches and functions, evaluating the stages of the life cycle and the types of organizational structures that can support it. These stages

are; examines the innovative relevance of the structure for different types of innovation (Chernoivanova, 2015).

The conceptual framework to be represented here is *the theoretical field of innovation and talent* in organizations. Innovation is *a multi-stage process that organizations use to successfully advance, compete and differentiate* (Narcizo et al., 2017).

Therefore, *the proposed conceptual approach* to the organization of innovations and innovative work differs significantly from the current relationship between innovative work and its characteristics; conceptualization is the study of organizational structure in terms of its interrelationship with the life cycle of innovations. The direction of future work on this topic is the development of tools and technologies for building innovation-oriented organizational structures (Chernoivanova, 2015).

Various authors have made references to the conceptualization of the concept of innovativeness. One of the earliest studies is by Hurt et al. (1977) and its novelty, according to the authors, is the willingness to change. According to Midgley and Dowling (1978), innovativeness is an innate personality trait. Rogers (1983), innovation is the time it takes for an idea or behavior to be adopted. Homburg et al. (2002) innovativeness is a function of the number of innovations a company offers, how many customers these innovations are presented to, and how much emphasis is placed on these innovations. Kundu and Katz (2003) associate innovativeness with the organization's intention to be innovative. Subramanian and Nilakanta (1996) and Subramanian (1996) define innovativeness as the consistent display of innovative behavior by an organization over time. (Walsh et al., 2009).

Innovativeness is, *on the other hand*, about intellectual work. Innovation activity, unlike other types of activity, has its own characteristics. The development of innovations is always associated with high risks and costs. It also requires highly qualified personnel who can comprehensively forecast and carry out innovation activity at different stages of innovation development (Chernoivanova, 2015)².

² The unique features of an innovative work can be listed as follows:

- Its outcome cannot be predicted, but it should always have a material form.
- Uncertainty and risk
- Uniqueness
- Combination of mental and physical work (Bekleshov and Zavlin, 1989)
- The novelty and originality of the works carried out
- Individual, creative character

Innovativeness is defined as a multidimensional construct. In this context, exploring the basic premises, dimensions and consequences of innovativeness consists of quite extensive studies. Innovativeness is conceptualized as a particular form of organizational mindset and a set of capabilities. Discovering the conceptual meaning of innovativeness means solving the structure of innovation. Therefore, it seems that the defining factor of long-term survival of organizations is based on the comprehensive organizational innovation capability structure called *innovativeness* (Walsh et al., 2009).

In today's era of rapid change, *innovativeness* is one of the most important catalysts for organizational business performance and economic growth, giving organizations a competitive advantage (Baden-Fuller, 1995; Baker and Sinkula, 2002; Darroch and McNaughton, 2002; Wijnberg, 2004; Farnese and Livi, 2016).

With *organizational innovativeness*, a major change is implemented within an organization. Because OI is related to the cultural structure of an organization. Accordingly, OI is a new or significantly improved knowledge management system that aims to better use or share knowledge and skills within the organization. Changes in business organization can be included in this system such as merging different departments or activities i.e. alliances, partnerships, outsourcing etc (Gallego et al., 2011).

Organizational innovativeness is seen as a critical source of competitive advantage in the contemporary changing environment (Dess and Picken, 2000; Tushman and O'Reilly, 1996). Innovativeness can be defined as a mental process that guides the invention of a new phenomenon (Moghli et al., 2012). In addition, strategic leadership and organizational innovativeness are recognized as the most important critical resource for maintaining strategic competitiveness in the 21st century (Elenkov et al., 2005; Palladan et al., 2016).

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- The result or product of the study is “new knowledge, scientific knowledge”
 - The complexity and content of the work performed
 - Requires highly qualified personnel
 - Complexity of measurement work
 - Requires certain abilities (personal qualities, intensity of thinking, length of mental tension, deep scientific knowledge)
 - The subject of the work has no material expression in most cases, the past serves in the capacity of previously accumulated knowledge (Chernoivanova, 2015).

5.2.2 Empirical Review Relevant to The Study

One of the issues underlined in organizational innovativeness studies is the determination of the main factors that determine the innovation performance in the institution. Thus, the organization makes an evaluation of itself in terms of innovation. In this way, he realizes where he has gaps and goes over them. In doing so, organizations also need to identify the actual practices they use in innovation management. In this way, they create a much smoother innovation roadmap for themselves.

Birkinshaw et al. (2008), internal and external interaction processes affect OI. Their analysis may be representative of the way process innovation is adopted in companies, using the open innovation model (Chesbrough, 2003) and judicious use of external information sources (Birkinshaw et al., 2008).

Competition begins as soon as a new product is introduced to the market. The positive forces of market competition combined with the rewards associated with innovation encourage the allocation of resources to innovation (Hunt, 2000; Liu and Gima, 2018). Innovativeness is closely related to the sustainability of the company and the entire business environment (Derevianko, 2019).

It is also said that innovation ability is a feature of companies that aim to increase their competitive advantage while supporting sustainability in the long run (Wrigley et al., 2016; Roszko-Wojtowicz, 2019). Business organizations aiming to remain competitive for a long time in today's economy should have the philosophy of constantly improving their innovation capabilities (Sriboonlue et al., 2016). In addition, contemporary companies aiming at sustainability have to improve their ability to meet and satisfy their stakeholders (Sudolska and Lapinska, 2020).

5.2.3 Research Gaps

When the existing literature is examined extensively, it is striking that *innovativeness* is often confused with *innovation* and there is a lack of clarity in meaning. Thus, uncovering a new conceptualization of innovativeness at the firm level will avoid confusion between innovativeness and innovation and separate it from real innovation. Innovativeness is a specific form of corporate mindset and therefore cannot be combined with a product innovation. Innovativeness is conceptualized as a specific set of capabilities that drives innovation activities (Walsh et al., 2009).

Global changes lead to increasingly complex environments and force organizations to innovate as a way to remain competitive. Organizations must continually innovate, change their management processes, and reconfigure their organizations to suit changing environments. Given this importance, academics are faced with the need to develop integrative OI models. Although the literature on OI is large, there are still some gaps. Most research has conceptualized OI as one-dimensional. For this reason, a multidimensional OI conceptual structure should be devised that aims to capture its complexity more accurately than existing ones. This conceptualization forms the basis of a holistic OI model. Also, most studies have used intradisciplinary perspectives that have led to fragmented findings (Damanpour, 1991).

However, in these conceptualization studies, a multidisciplinary approach should be used with concepts from various disciplines such as management and marketing (Shoham et al., 2012). For this reason, there is a need for studies in which innovativeness is clearly separated from innovation and, accordingly, a multidimensional conceptual model of innovativeness is derived.

As can be seen in the in-depth literature review, no five-dimensional conceptual model of OI was extracted in any study, and all five of these five dimensions were not included in the same study. In this study, the five dimensions of OI such as creativity, openness to change and innovation, future orientation, risk taking and proactivity are discussed and it is primarily aimed to fill this gap. Within the scope of this study, these five dimensions were included in the same study and their interaction with each other was examined and conceptual modeling was made.

5.2.4. Statement of The Problem

The main reason why the XXI. century is characterized by the concept of change is that technological and scientific developments have progressed much faster than in previous periods. The scope and speed of the phenomenon of change has almost passed into a different dimension. Concepts such as mobility, risk and competition constitute the basic building blocks of today's world. For this reason, companies cannot be expected to maintain their continuity without being affected by the concepts mentioned. If organizations want to be innovative; they should be able to overcome the pressure of environmental change, initiate the transformation themselves, follow the current process

and act with the help of a model that has been actively adapted to the outside in this process (Naktiyok, 2007).

The understanding of innovativeness, which is one of the indispensable issues of today's world, increases the level of need for managers and followers. These increasing requirements have become an integral part of the organization to be strong in terms of stability and competition. The understanding of development, change and innovativeness is one of the most important phenomena followed around the organization for managers. This fact constitutes the indispensable basis of the stability to be provided for the managers to compete with their rivals and to gain an advantage over them. By blending these facts with their own knowledge, experience and abilities in the organizational context, managers increase both their commitment to themselves and their motivation in organizational activities (Çalışkan, 2017).

Organizations today are looking for ways to survive and thrive in an increasingly complex connected world. Therefore, the ability to develop and implement new business processes is a central competency in most industries and a critical practice for global businesses (Moller, 2007).

Innovativeness should be viewed as an organization's strategic and competitive orientation. Unlike innovation, innovativeness is not an end but a means to an end. It is this unique aspect that captures the important difference between innovativeness and innovation (Walsh et al., 2009).

One of the most promising ways to develop market opportunities is an innovative way, which should be considered not only from a strategic point of view, but also from the point of view of the management system of enterprises carrying out economic activities. Ignoring the innovation factors in the structure and functioning of the management system can be considered as one of the reasons for the deficiencies in the system. Considering the current situation of the country's economy, where the crisis, low competitiveness, and the innovation perception of the enterprises are taken into account, the importance of this problem increases even more. Therefore, it is necessary to develop and introduce modern methods and principles of the management of innovation activities of the economic system, create conditions for their activation and improve their effectiveness (Chernoivanova, 2015).

What innovativeness capabilities are required to successfully develop innovative capability? Requires a careful review of the available literature on innovative capability specifically and strategy-innovation-competition linkage in general (Aas and Breunig, 2017).

Hurley et al. (2005) distinguished between innovativeness and capacity to innovate (Hurley and Hult, 1998; Hult et al., 2004; Hurley et al., 2005). According to their conceptualization, innovativeness is a part of organizational culture. Therefore, innovativeness is not combined with specific product innovations; rather, it reflects a cultural characteristic of the organization and its willingness to pursue new opportunities (Wang and Ahmed, 2004).

Within the scope of this study, the potential role of OI in management has been considered. In the light of the above-mentioned information, the five-dimensional conceptualization of OI has been examined. These; creativity, openness, future orientation, risk taking and proactivity. This study focuses on the problem of how an operationalization can be proposed for the multidimensional OI structure. When the literature is examined, it is observed that the one-dimensional conceptualization of OI is emphasized. However, in this study, the problem of multidimensional conceptualization of OI of competitive strategies is examined.

5.3. THE AIM OF RESEARCH

The main purpose of this study is examining the relationship between *organizational innovativeness (OI)* and *competitive strategies* within life sciences sector.

In other words, the aim is to test whether there is a relationship between organizational innovativeness and competitive strategies, and if there is such a relationship, to reveal the mutual factors affecting each other with exploratory and confirmatory methods.

5.3.1. Research Objectives and Goals

In addition to the main objective set out above, this study also plans to achieve the following objectives:

- To examine the theoretical studies on the competitive strategies and organizational innovativeness levels of businesses and other organizations,

- To create a conceptual model that enables a relationship between the organizational innovativeness processes of managers and the levels of competitive strategies,
- To determine how and to what extent the business organizations studied can carry out the competitive strategy management process,
- To reveal the organizational innovativeness levels and management processes of the business organizations in question,
- To determine the levels of interaction of organizational innovativeness and competitive strategies in these business organizations.

In addition to achieving these goals and objectives, the research also plans to offer guiding recommendations to other researchers and policy makers working on related issues.

5.3.2. Research Questions

Modern companies cannot establish a dominant position in a market and gain competitive advantage without innovating. From this point of view, companies should carefully choose all kinds of innovations and practices related to this innovation that will provide them with a competitive advantage. The question of what these innovation and innovativeness initiatives might be in the current situation should always be asked. A company is considered innovative to the extent that it can transform existing inputs into a valuable output (Borocki et al., 2013).

Every firm employs certain strategies when competing, either implicitly or explicitly, in an ever-changing environment. The more each company can combine these strategies with its innovative approaches, the more successful it will be and will go ahead of its competitors (Walker, 2009).

Until recently, empirical innovation studies focused almost exclusively on the product innovation and manufacturing industries. As stated many times before, the question of innovativeness and how this concept can be operationalized has not been fully answered in the researches. Today, however, service industries are gaining increasing importance in the GDP of many developed countries. Innovativeness in services has indeed become a topic of increasing interest among economists and researchers of technological change. For this reason, there is an urgent need for studies that need to examine and question the concept of innovativeness in more detail (Acar and Acar, 2012).

From these perspectives, the issues of how business organizations carry out their organizational innovativeness processes and how they increase their level of innovativeness have become increasingly important questions and agendas.

In this study, it is aimed to answer the question of how and to what extent the activities of obtaining, transforming, implementing and maintaining competitive strategies in their internal business processes have an impact on the organizational innovativeness levels of these organizations.

However, one of the most comprehensive questions asked in this research is whether achieving a position of strength in one of the competitive strategies and organizational innovativeness arguments leads to an improvement in the position in the other.

5.4. RESEARCH DESIGN

Scientific research is defined as the whole of activities carried out in order to solve existing problems in a certain field, to produce new information about different disciplines and to find answers to existing questions. Scientific studies aiming to solve problems and produce knowledge should strictly follow certain steps and present these steps in a concrete, objective, understandable and interrelated manner. However, the results obtained in this way are reliable and convince the relevant people (İslamoğlu and Alınacı, 2016).

It is possible that the new information produced can convince other scientists who have the inherent skepticism of scientific action, thanks to the realization of the research process with certain successive steps. From this point of view, the research process consists of the steps of defining the research problem, determining the hypotheses to be put forward to solve this problem, determining the research universe and sample, choosing the data collection tool and analysis method to be used in testing the hypotheses, presenting and interpreting the findings obtained as a result of the analysis, and finally reaching some conclusions (Büyüköztürk et al., 2016).

In scientific studies, it is seen that three types of research methods are used, qualitative, quantitative and mixed. While qualitative research examines the behavior of individuals or groups, quantitative research is a research method that examines nature and nature related behaviors different from people (Creswell, 2014; Ekiz, 2009). Researchers use the qualitative method as the data collection method in some studies, while others prefer to

use the quantitative method. However, it should be known that there are also mixed method studies that use both methods together (Matthews and Ross, 2010).

Research methods used in social sciences are classified within the framework of certain criteria. This classification is given in Table 5.1 below:

Table 5.1. Classification of Research Methods.

Criteria	Types
Based on Philosophy	- Quantitative Research - Qualitative Research
According to the Data Collection Techniques	- Empirical Research - Documentary Research
According to the Characteristics of the Data Used	- Primary Data Based Research - Research Based on Secondary Data
According to the Purposes	- Basic Research - Applied Research - Cross-sectional Research
According to the Data Collection Time	- Longitudinal Research - Instant Research
According to the Number of Participants	- Single Participant Research - Multi-Participant Research
According to the Measurement Conditions	- In-group Patterned Research - Patterned Research Between Groups - Mixed Pattern Research
According to the Intervention Situation	- Experimental Research - Non-Experimental Research

(Source: Büyüköztürk et al., 2016).

Research design serves as the master plan of the methods, pathways and procedures that should be used to collect and analyze the data the researcher needs for his/her study (Hair et al., 2003: 40). In other words, a research method deals with the process of how research data should be collected, organized and analyzed with a roadmap. The researcher follows the steps specified in his method. The choice of research method varies greatly depending on the nature of the research questions (Mamabolo, 2009).

Undoubtedly, every work is carried out within the framework of a design. The research design essentially shows the overall plan for how to answer the research question. The importance of clearly defining the research question cannot be overemphasized here. Because, of course, all research is done to seek answers to some questions. This plan should include the research question(s), clear objectives, specify which sources the data will be obtained from and how it will be collected, and analysis proposals with main errors. There will of course be certain constraints (time, money and place) when doing all

the work. This plan should discuss ethical issues and inevitably encountered restrictions (eg access to data). Most importantly, it should show that you are considering elements of your specific research design. The first methodological choice is whether you choose quantitative, qualitative or mixed methods research design. Each of these options will likely require a mix of different elements to ensure consistency in your research design (Saunders et al., 2016).

In determining the method; The purpose of the research, the problem of the research and the subject of the research were taken into consideration, the quantitative research method (quantitative research design) was thought to be the most appropriate method for the realization of the purpose, the solution of the problematic and the testing of the hypotheses put forward by the researcher, and the quantitative research method was preferred in the research. The main reason for this choice is that the quantitative research method provides the researcher with very strong bases for the validity, reliability and generalizability of the research results.

Another reason is that examining the research subject with qualitative research methods will cause serious difficulties for the researcher in terms of time and cost. The research is also an empirical research and questionnaire technique was used as a data collection technique. Considering the characteristics of the data used, it is a research based on primary data. The study, which is classified as an applied research type of research according to its purposes, is a multi-participant research since data is collected from the participants in a single time and because many participants are reached. At the time of the study the research is included in the non-experimental research group, since no intervention is made by the researcher to the process. In the light of the information given above, the steps followed during the conduct of this research and the research design are presented in Figure 5.1 below, respectively. Accordingly, the phrases indicated in the figure are: F: Feedback (Helps Control the Subsystem To Which It Is Transmitted), FF: Feed Forward (serves the vital function of providing criteria for evaluation).

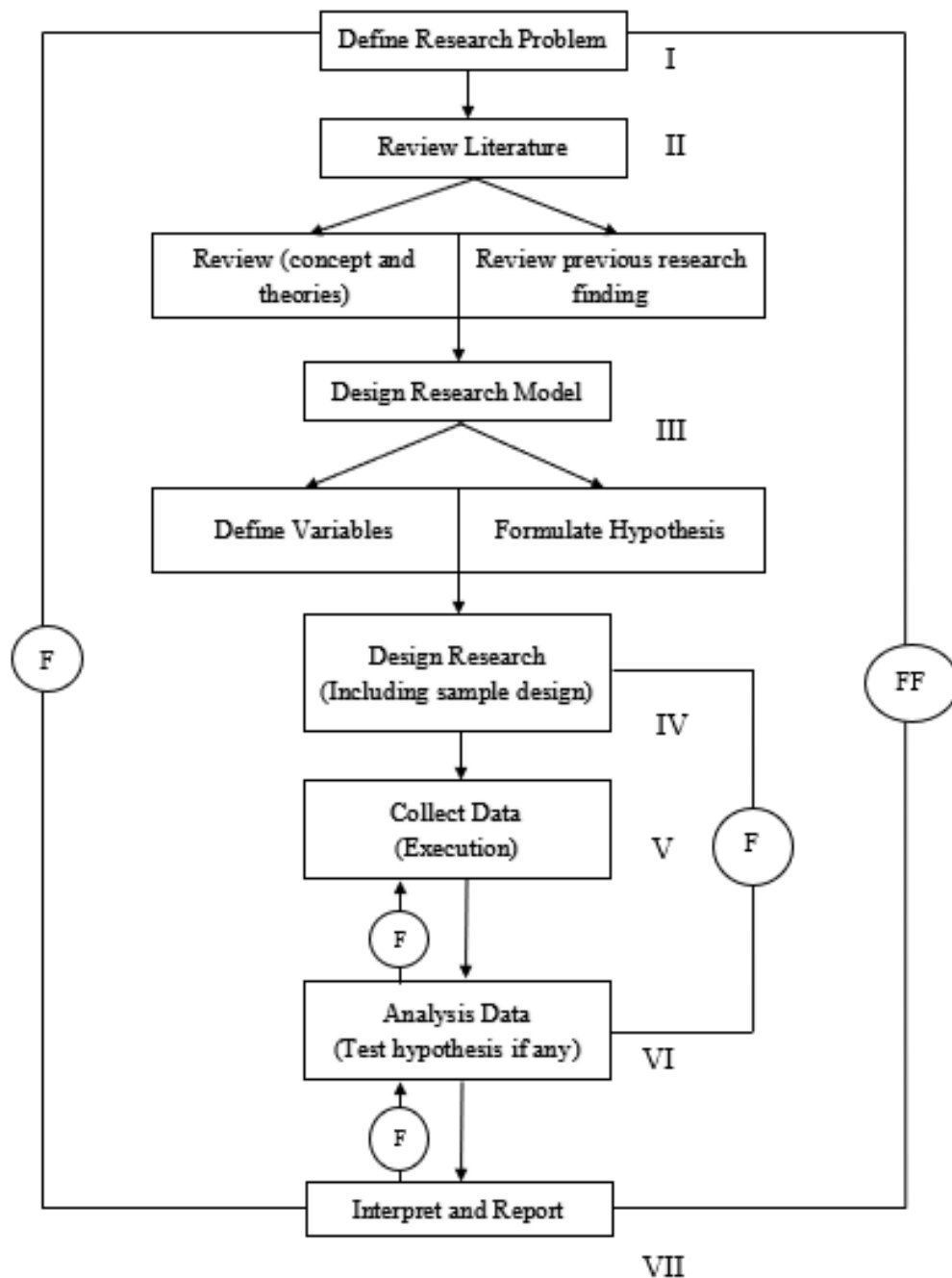


Figure 5.1. Research Design Of Study (Adopted from Saunders et al., 2016)

5.5. DEVELOPMENT OF THE RESEARCH MODEL

The model of a research is defined as a visually expressed theoretical framework created from assumptions about a reality in order to understand the relationships between the variables in the problem of the research and to produce better analyzes or to reveal cause-effect relationships. In other words, the researcher essentially describes the

relationship between the variables of the research visually. As indicated in the literature review, various models and variables are used depending on data validity and the researcher's focus on the relevant topic (Herron and Robinson, 1993; Cooper et al., 1997; Baum and Locke, 2004).

Successful organizations need to adapt their internal structures to a flexible structure to adapt to developing and changing conditions and take strategic decisions to keep up with the transformations that may occur in this environment in order to adapt more quickly to the rapidly increasing in today's global competitive environment (Malina and Selto, 2004).

When the literature is examined, it is seen that activities such as establishing a new business unit and developing corporate strategies, entering new markets, capturing competitive advantage in the markets served, putting forward new initiatives, learning new talents and developing innovation-based programs that encourage strategic change provide opportunities for managers to develop. However, it is known that providing and realizing managerial effectiveness plays a critical role in improving institutional performance (Malina and Selto, 2004).

When the literature on competition strategies and organizational innovativeness, which constitute the concepts of this research, is examined, it is seen that a significant number of qualified studies have been made about these concepts in both domestic and foreign literature. This situation reveals how important these concepts are from a scientific point of view.

During the model development phase, similar model studies were examined as a result of the review in the domestic and foreign literature on the concepts of competitive strategies and organizational innovativeness, and the final model of this research was created. Studies in which the concepts of competitive strategies and organizational innovativeness are included as independent variables, mediating variables and dependent variables have been tried to be examined.

For example, the study by Pallas et al., 2013 in the method development phase is noteworthy. Organizational innovativeness, as a firm's cultural predisposition, provides an environment that actively promotes innovation. In this study, organizational innovativeness and multidimensionality were measured in a multidimensional formative scale developed theoretically from a cultural-strategic perspective and through qualitative

interviews. While innovation process competence fully mediates the relationship between innovation and innovation performance, the contingency factor competitive intensity reinforces this performance effect (Pallas et al., 2013).

In this study, data was obtained from both primary and secondary sources to test the framework and hypotheses, and a cross-sectional study was conducted in Germany covering four different industries: automotive, engineering, medical science and food. Accordingly, the research model within the scope of this study is shown in Figure 5.2.

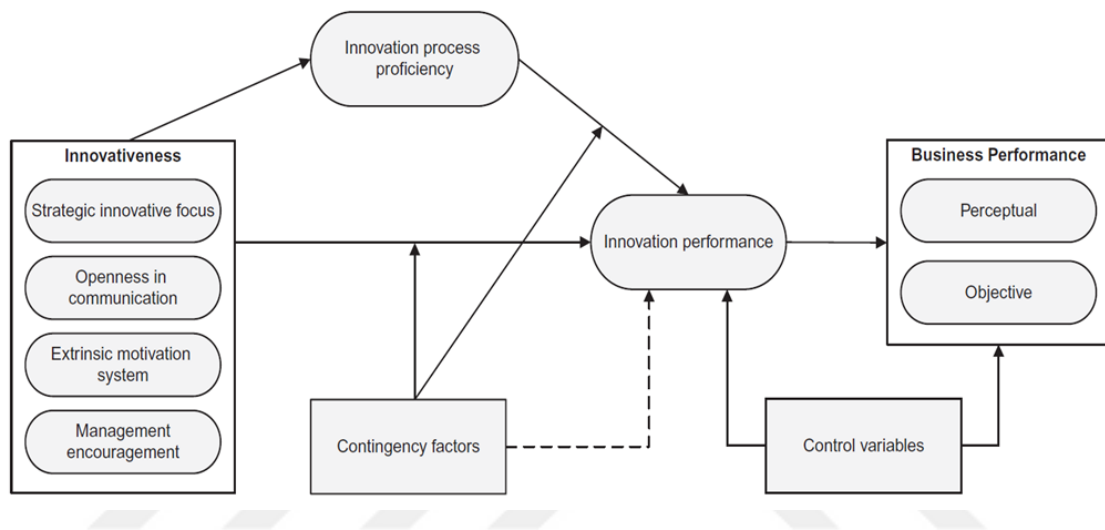


Figure 5.2. Research Model Pallas et al., 2013

According to Figure 5.2, Pallas et al., 2013; illustrates the comprehensive framework for testing newly developed high-level formative measurement approach to cultural-strategic innovativeness (Pallas et al., 2013).

According to Gallego et al. (2011) organizational innovativeness is often neglected in innovation theory and firms' innovation activities are perceived only as product and process innovation (Drejer, 2004). Organizational innovativeness is truly observable innovation as it can increase productivity and profits (Armbruster et al., 2006; Alegre and Chiva, 2008).

In this study, the suggestions of Subramanian and Nilakanta (1996) were taken into consideration and the concept of organizational innovativeness (Wolfe, 1994) was tried to be conceptualized as multidimensional. The main assumption in this study is how the changes made will reflect on products and processes. Accordingly, organizational flexibility and change positively affect products and processes (Van der Weerd et al., 2006).

This study, by taking a multidimensional approach, tried to emphasize that organizational innovativeness is also important for small firms. In this study, the relationship of a change with its technical aspect has been examined. Results from the study provided empirical monuments. Accordingly, it shows that small firms exhibit an innovation model that complements institutional innovation with the expenditures made on internal R&D activities and the intensive use of external knowledge (Gallego et al., 2011).

The sample in the analysis was divided into three categories (according to the number of employees: ≤ 49 employees, 50-250 employees, > 250 employees) according to the size of the firm and consisted of 170 units. Covered the manufacturing and service industry for which a large and complete dataset on innovation is available (Gallego et al., 2011). Accordingly, the research model is given in Figure 5.3.

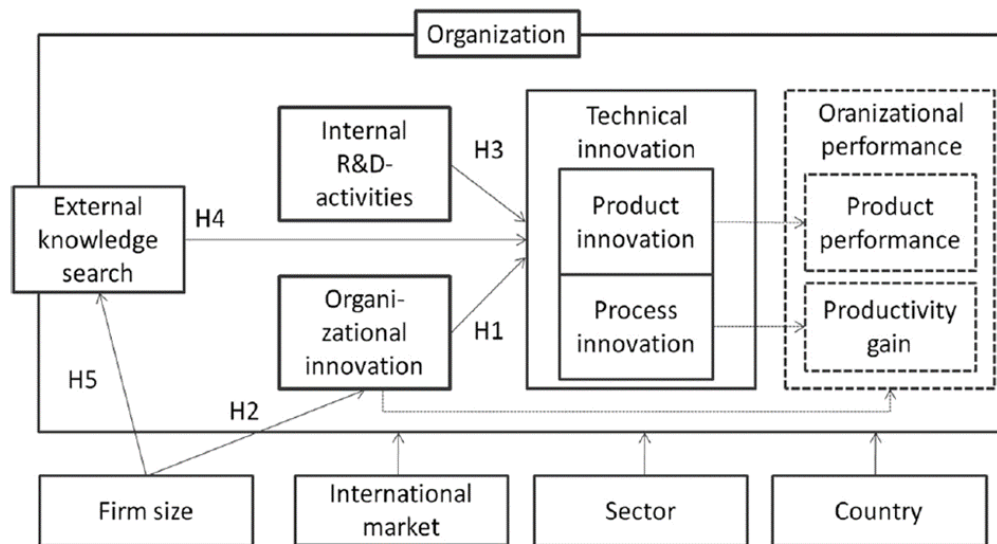


Figure 5.3. Research model: Multidimensional Conceptual Framework Of Organizational Innovativeness (Gallego et al., 2011)

Another model mentioned in this study belongs to Tesfaye and Kitaw (2018). This study examined the innovation capability development (ICD) structure. Essentially, firms in developing countries lack a conceptual model of innovation tailored to their needs. To define ICD in these firms, the research findings must have consolidated both the technical and financial aspects of innovation (Tesfaye and Kitaw, 2018).

In this research, a conceptual model of the ICD process, which is very valuable for companies in developing countries (FDC), has been tried to be developed. Two important

findings were obtained in the study. First, three basic structures for ICD; knowledge accumulation, knowledge application and resource creation are defined. The first two of them represent the technical side, and the third structure represents the financial side of innovation capability. Second, using these three key structures, this research proposed a conceptual model for FDC that describes an ICD process. Accordingly, the proposed model for the three basic structures of ICD is given in Figure 5.4 (Tesfaye and Kitaw, 2018).

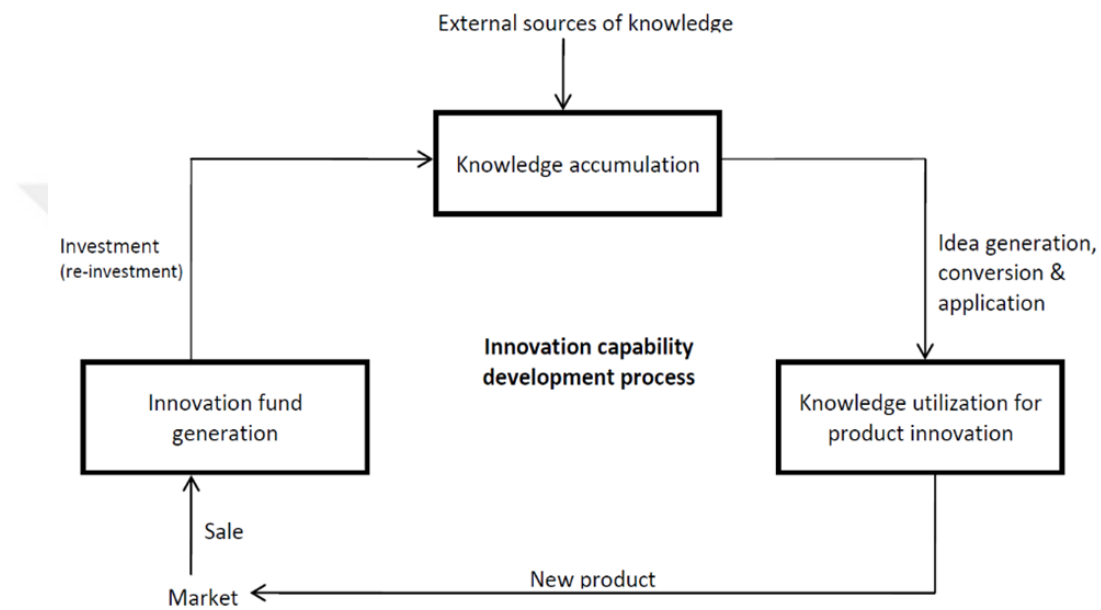


Figure 5.4. The Three Key Constructs To Form ICD Process (Tesfaye and Kitaw, 2018)

The findings of this study highlight that firms' efforts towards ICD can be better explained by integrating the technical and financial aspects of innovation. In fact, the financial approach is of interest here, because the impact of technical and technological developments is often lamented. In this respect, the findings on how these two integrations should be done are remarkable. The focus of the model is to understand key structures and their interrelationships to improve firms' attitudes and practices to improve their innovation capabilities (Tesfaye and Kitaw, 2018).

What is remarkable in this study is the composite key structures of the ICD. In the current literature, these structures have been studied in different contexts and angles. This research highlights the need to combine them in a context that the FDC can easily grasp and use. Accordingly, the model is given in Figure 5.5 (Tesfaye and Kitaw, 2018).

The literature mostly focuses on the impact of OI and innovation adoption on corporate performance and sees OI as a corporate strategy (Damanpour and Evan, 1984). Five dimensions of OI were proposed in this study: creativity, risk taking, future orientation, openness to change and innovation, and proactivity. Essentially, this article was used as the starting point in this thesis study and this article was used while developing the scale. We can state that this study sheds a great light on this thesis. In addition, the four OI antecedents demonstrate the multidisciplinary nature of this work. These; marketing and management disciplines, market orientation (MO), learning orientation (LO), centralization and organizational politics as potential antecedents. The model is shown in Figure 5.6 (Shoham et al., 2012).

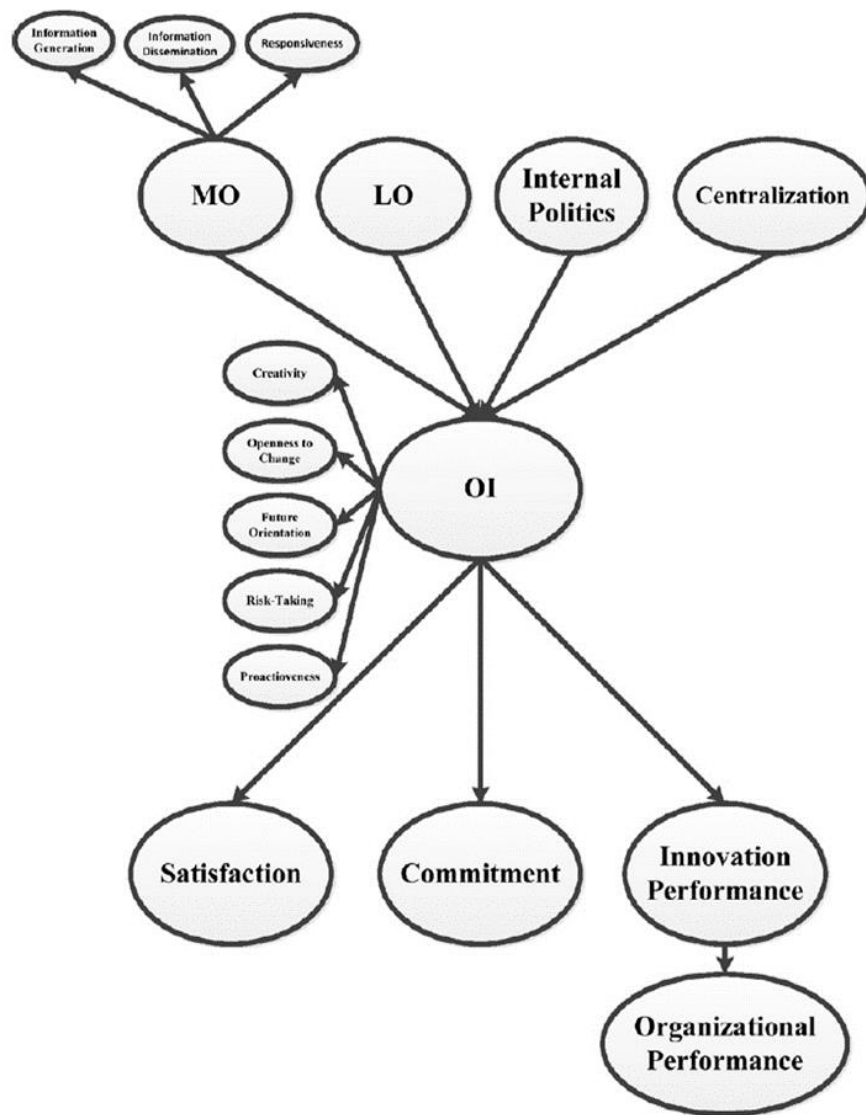


Figure 5.6. Theoretical Model (Shoham et al., 2012).

Farnese and Livi, 2016 touched upon the subject of openness in communication, one of the five dimensions of organizational innovativeness. Within the scope of this thesis study, the scale used for its size for openness to change and innovation was also used. According to this study, reflexivity encourages the change of habits and routines by questioning and critically monitoring the purposes and methods in use. In other words, reflexivity is a learning process that supports organizational performance and innovation while doing this. In this research, the contribution of reflexivity as an important process for knowledge production in supporting institutional openness to innovation has been tried to be verified. Results confirm that reflexivity improves innovativeness (Farnese and Livi, 2016).

The participants of the study are 156 employees from 3 different Italian organizations (insurance and financial services, pharmaceutical industry). Within the scope of the study, the company managers were contacted irectly and trained researchers applied questionnaires. When evaluating the questionnaire, three scales were used that assess how variables that select different social levels (team reflexivity, team climate for innovation, individual affective commitment) contribute to increased openness to organizational innovativeness from a subjective perspective (Farnese and Livi, 2016). The model used in the research is shown in Figure 5.7.

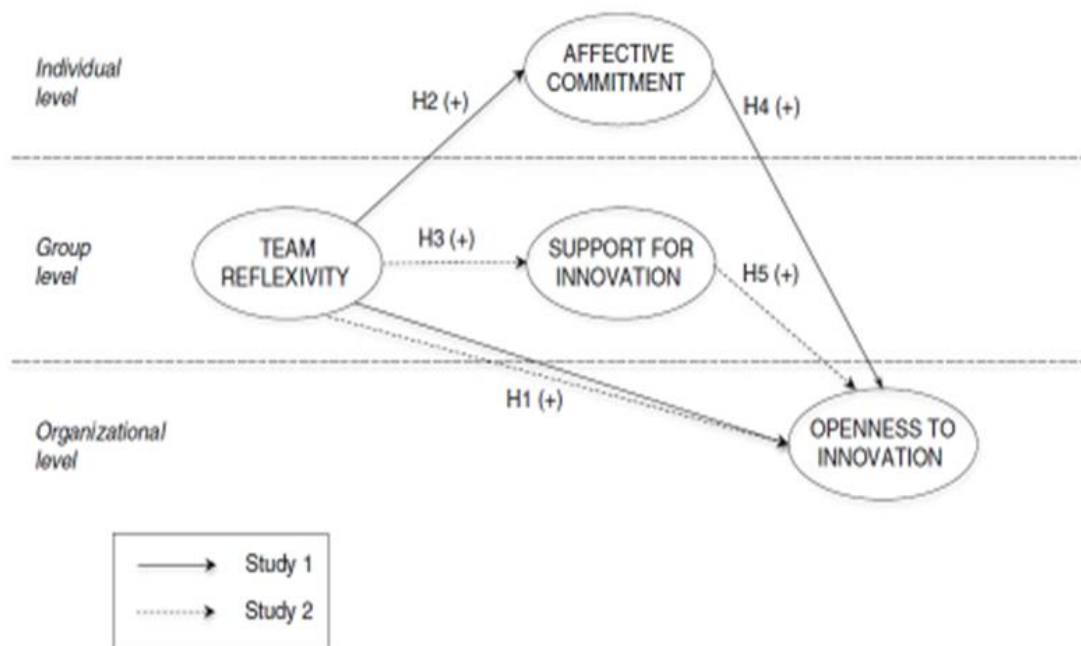


Figure 5.7. Proposed Relationships Among The Variables In Study 1 And Study 2 (Farnese and Livi, 2016).

Another reviewed article is from Palladan et al., 2016. This article considers a model conceptualization of four variables: strategic leadership (SLP), organizational innovativeness (OIV), information technology capability (ITC), and effective strategy implementation (ESE). The study aimed to break the knowledge boundary between these concepts. This article suggests that strategic leaders, coupled with the innovation attitude and IT capabilities of the organizations, will increase the efficiency of the organizations through the proper implementation of good and respected strategies (Palladan et al., 2016). The model of the study is given in Figure 5.8.

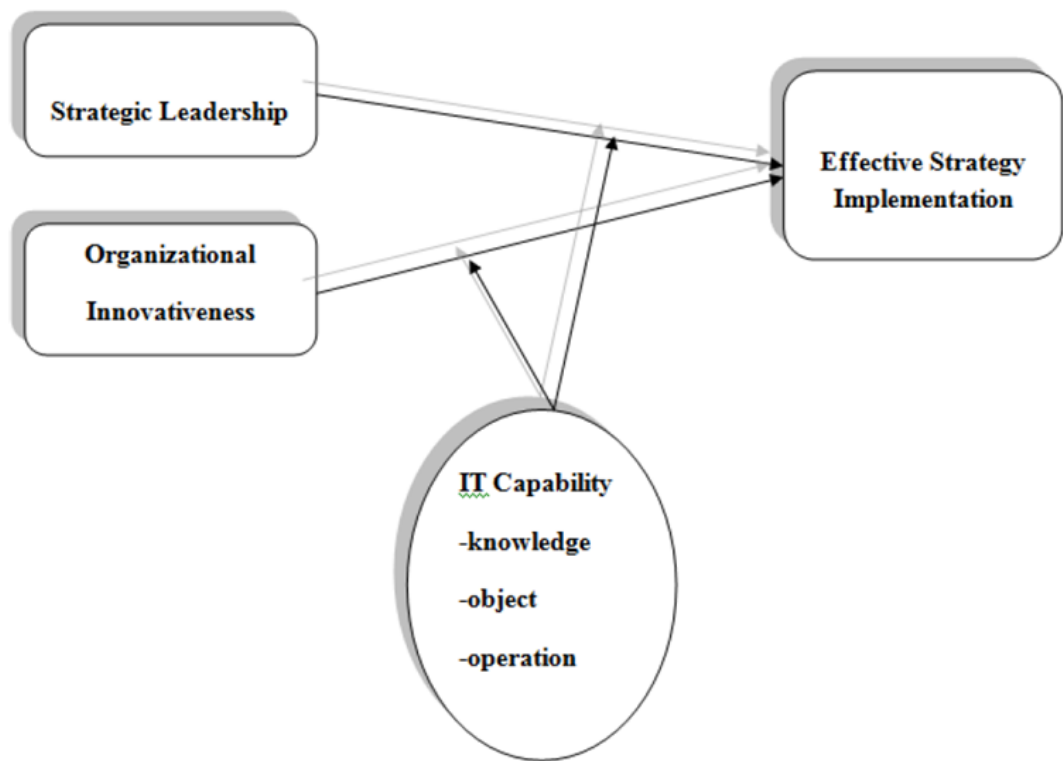


Figure 5.8. The Proposed Research Framework (Palladan et al., 2016).

Global competition is becoming more intense as product life cycles shorten around the world. This inevitably brings about the necessity to innovate and develop innovativeness within organizations. Even the issue of combining low cost with high quality has become commonplace for institutions and is not sufficient. Critical to growth in most industries is the combination of launching new and different products and services, entering lucrative markets, creating new competitive advantages, and implementing new business models. Sustainable development cannot be expected without innovativeness. What is critical and decisive for any organization is to develop innovative strategies that not only

respond to environmental changes and social pressures, but also take into account the needs and expectations of various stakeholders (Semerciöz and Aldemir, 2011).

For this reason, it is necessary to examine the concept of innovativeness and competitive strategies in a multidimensional way and to develop a conceptual model accordingly.

When the relevant literature is examined, it is seen that studies investigating the relationship between organizational innovativeness and competitive strategies are insufficient.

Moreover, although the subject of innovation has been examined in detail from various dimensions, there has hardly been any study in which 5 different dimensions of organizational innovativeness (creativity, proactivity, openness to change and innovation, future orientation, and risk taking) are examined together.

In the conceptual research model below, it has been tried to examine how organizational innovativeness, together with its five dimensions, affects competitive strategies. Accordingly, the presented conceptual research model is given in figure 5.9.

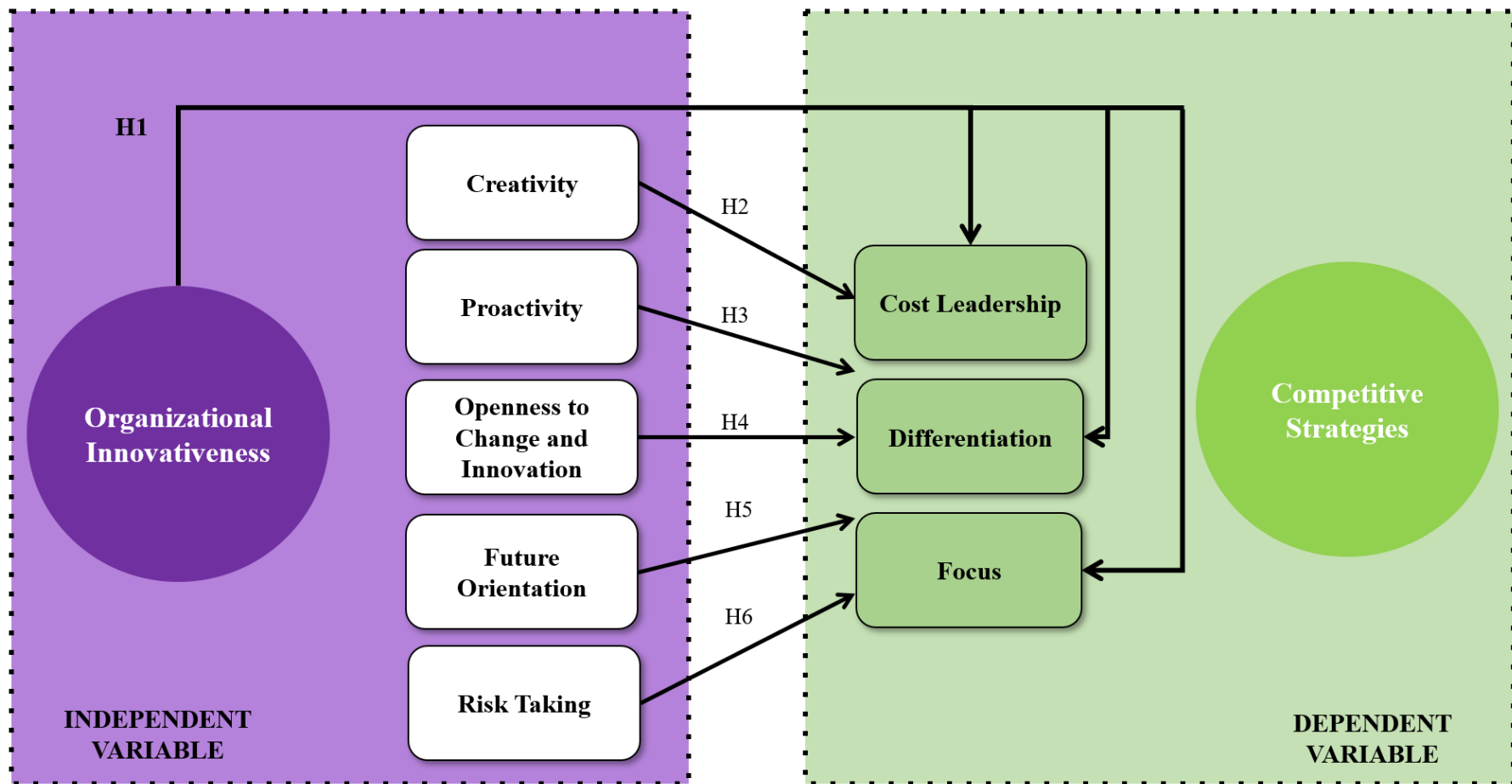


Figure 5.9. Conceptual Model of The Research.

5.5.1. Descriptive Analysis of Independent Variables

Organizational innovativeness affects many things in business organizations in general, including the adoption of a new idea or behavior. Organizational innovativeness is a means of changing an organization in response to changes in the external environment. Damanpour (1996) evaluated innovation as new products or services, new process technologies, new organizational structures or administrative systems, or new plans or programs for organizational members.

Innovation has become an indispensable element for businesses to maintain their competitive advantage. Innovations to be made in both products and business processes provide great benefits for businesses to maintain their current competitiveness as well as gain new advantages. For this reason, the innovative capabilities of enterprises, in other words, their level of innovation is the most important factor in the process of gaining competitive advantage. Because businesses will have the opportunity to make more successful and beneficial innovations by improving their innovativeness levels.

It is now accepted by all researchers and business owners that innovativeness is an indispensable element for businesses. Due to the ever-evolving technology, ever-increasing and changing customer needs and demands, and ever-increasing difficulties in accessing financial resources, it is of great importance for businesses to establish and maintain an effective innovation process in order to maintain and then increase their competitiveness (Parida et al., 2012).

Therefore, the relationship between organizational innovativeness and competitive strategies is examined in this study. In this context, the five sub-dimensions of organizational innovativeness, creativity, proactivity, openness to change and innovation, future orientation and risk taking are chosen as independent variables.

5.5.2. Descriptive Analysis of Dependent Variables

Increasing effects of globalization, developments in information, communication and technology have made the working environment very dynamic for businesses. In order to outperform the others in a sector, they must fully adapt to this dynamic environment and develop strategies suitable for this dynamism (Nyaanga, 2014).

Of course, identifying the sources of business success in highly dynamic and turbulent environments is also very complex. The prominent concept in this regard is dynamic

abilities. Dynamic capabilities are organizational competencies that make it possible to integrate, reshape, innovate and create internal and external resources in response to the needs created by an ever-changing and increasingly demanding environment for competitive advantage (Cortes, 2017).

According to Porter (1980), there are three competitive strategies that can be applied to various products and services, and they are also called general strategies. These enterprise-level strategies within a corporate portfolio lead firms to a competitive advantage. Porter (1985) stated that firms that want to achieve above-average performance in an industry should adopt one of these competitive strategies.

Competitive strategies are discussed in three categories as cost leadership, differentiation and focus. These were chosen as the dependent variables of the study. (1) Cost leadership strategy: A business can achieve high performance as a low-cost producer; (2) Differentiation strategy: A business can gain competitive advantage by differentiating its products or services; (3) Focus strategy: together with cost leadership or differentiation strategy, the firm can gain competitive advantage by focusing on a particular segment of the market.

5.6. DEVELOPMENT OF THE RESEARCH HYPOTHESES

Whether in the natural sciences or the social sciences, the researcher puts forward hypotheses about the variables he/she is interested in and tests these hypotheses with scientific data analysis methods.

Hypotheses are sentences that concisely express the researcher's prediction about the interaction between the variables in the subject and research problem. Scientific research hypotheses should be testable and logical, and should be expressed in a short and simple way in the light of current information (Balci, 2015; Coşkun et al., 2017).

The common goal of all companies in the world is to dominate the market in their sector by providing competitive advantage. Being able to provide a competitive edge is about predicting many factors correctly and developing a related strategy. For this reason, the concept of competitiveness and competitive strategies will always be up-to-date among all companies that want to dominate the market.

According to Porter, at the core of competitive strategy is the concept of competitive advantage. Three strategies are used to gain this advantage. These ; innovation, quality

improvement and cost reduction. The innovation strategy is to develop products or services that differ from competitors and the focus here is to offer something new and different. Improving product and/or service quality is the main focus of the quality improvement strategy (Schuler and Jackson, 1987).

Besides being a direct source of competitive advantage, organizational innovativeness is a prerequisite for a firm's knowledge development and management. organizational innovativeness also acts as a facilitator for technical innovation (Lundvall and Nielsen, 2002).

On the other hand, Lee et al. (2008) emphasized that organizational innovativeness for high technology is reflected in a flexible and creative learning culture. Of course, it will be more difficult for competitors to imitate more unique and complex organizational problems, and thus organizational innovativeness will create competitive advantage (Rivkin, 2000).

Accordingly, the hypotheses within the scope of this study were tried to be formed by considering all these perspectives. In fact, as seen in the extensive literature review, no study has been found on the effect of the two-dimensional conceptualization of organizational innovativeness on focus, differentiation and cost leadership, which are direct competitive strategies. The effect of the concept of innovativeness on competition has been emphasized many times, but the effect of these five dimensions has not been directly examined. For these reasons, to get a complete picture of a firm's innovativeness efforts, the concept of innovation should not be limited to technical development alone in a narrow, product- and process-oriented sense. Because innovativeness should be expanded to include organizational innovativeness and should be studied broadly. Undoubtedly, this review will have serious contributions to all stakeholders and practitioners (Gallego et al., 2011).

5.6.1. Hypotheses On The Effect Of Organizational Innovativeness (OI) On Competitive Strategies (CS)

Porter's (1980, 1985) work on strategic management for competitive advantage formed the basis for subsequent research on strategic information systems (SIS). He developed three general strategies, including overall cost leadership (becoming a low-cost leader), differentiation (in the product or service), and focus (finding a particular niche in a market) (Gatian et al., 1995).

Managing creativity and capabilities, like innovativeness capability, is one of the basic elements of an innovative organization (Saunila and Ukko, 2012). Alasoini et al. (2007), it can be assumed that an organization's performance increasingly depends on its ability to innovate (Alasoini et al., 2007).

Hypotheses on the effect of organizational innovativeness on competitive strategies are given under the title H7.

H₁ Organizational innovativeness has a significant effect on competitive strategies.

Innovativeness is also an important source of efficiency. Through the innovativeness process, companies can reduce costs, shorten cycle time, and build closer ties with customers and other business partners (Ruggles and Little, 1997; Sajeve and Jucovicus, 2008).

Potentially, organizational changes can provide competitive advantage (Armbruster et al., 2008; Lemon and Sahota, 2004); For example, new ways of organizing a value chain can reduce unit costs (Evangelista and Vezzani, 2010; Schmidt and Rammer, 2007; Gallego et al., 2011).

Based on these perspectives, the hypotheses that deal with the five dimensions of organizational innovativeness and cost leadership strategy is formed as follows.

H_{1a} Organizational innovativeness has a significant effect on cost leadership strategy.

According to Porter, one of the general strategic alternatives of firms to achieve long-term goals is differentiation. The essence of this strategy is to maintain uniqueness for customers and motivate their customers to pay higher costs despite low-cost competitors. (Porter, 1980).

Undoubtedly, differentiation is different in every sector. Differentiation happens by creating something that is considered unique in all industries. The aim here is to differentiate the product or service offered by the business (Porter, 1985).

In this context, Porter (1985) argued that companies will gain competitive advantage through innovativeness and innovation. Schumpeter argued that entrepreneurs will tend to use technological innovation to gain strategic advantage (Tidd et al., 2005; Acar and Acar, 2012).

To protect the firm's returns from the effects of competition, businesses must undoubtedly create unique and valuable capabilities in the eyes of customers. The more

impossible it is to imitate and substitute these talents, the more advantageous the institution will be (Barney, 1991; Walker, 2009: 50).

When Porter's view on competitive differentiation and innovation strategies and Resource-based theorists' views on substitution and imitation are evaluated together, it is seen that innovation is the most important business capability that creates valuable, rare, inimitable (or costly imitative) and non-existent. Today, gaining and maintaining a competitive advantage with innovation capabilities is vital to challenge the fierce competitiveness in the market (Acar and Acar, 2012).

Innovativeness is the production or adoption, assimilation and use of a value-added innovation. Therefore, it is both a process and a result (Crossan and Apaydın, 2009). With all these aspects, innovativeness emerges as a requirement of differentiation and change (Semerciöz and Aldemir, 2011).

Market Readers have differentiated themselves with their preference for gradual change and being a fast follower of the markets. They watch the markets carefully and take a more cautious approach that focuses on creating value through gradual change (Ramadani and Gerguri, 2011)

Based on these perspectives, the hypotheses that deal with the five dimensions of organizational innovativeness and differentiation strategy is formed as follows.

H_{1b} Organizational innovativeness has a significant effect on differentiation strategy.

The utility of competitive strategies (cost leadership and differentiation) and market-based assets (customer focus, competitor orientation and marketing creativity) helps an innovative firm improve its innovation returns. This is a very important approach for the company. According to the research; emphasis on customer focus, cost leadership, and creative marketing demonstrates better product innovation performance (Lui and Gima, 2018).

Empirical research has suggested that sources of innovation often lie outside an organization (Von Hippel 1988; Lundvall, 1992). Therefore, an organization should analyze the external environment very well. Firms may anticipate this process that organizational innovativeness may be a necessary prerequisite for focused innovation. They can focus on the internal organizational reform and transformation processes necessary to create such preconditions. Scholars have suggested focusing on the role of

internal organizational forces such as learning capacity, values, interests, and power in shaping organizational revolution and technological change (Lam, 2004).

Based on these perspectives, the hypotheses that deal with the five dimensions of organizational innovativeness and focus strategy is formed as follows.

H_{1c} Organizational innovativeness has a significant effect on focus strategy

5.6.2 The Hypotheses On The Effect Of The Sub-Dimensions Of Organizational Innovativeness On The Sub-Dimensions Of Competitive Strategies

The hypotheses on the effect of the sub-dimensions of organizational innovation on the sub-dimensions of competitive strategies are as follows.

H₂ Organizational innovativeness- creativity has a significant effect on competitive strategies.

H_{2a} Organizational innovativeness- creativity has a significant effect on cost leadership strategy.

H_{2b} Organizational innovativeness- creativity has a significant effect on differentiation strategy.

H_{2c} Organizational innovativeness- creativity has a significant effect on focus strategy.

H₃ Organizational innovativeness- proactivity has a significant effect on competitive strategies.

H_{3a} Organizational innovativeness- proactivity has a significant effect on cost leadership strategy.

H_{3b} Organizational innovativeness- proactivity has a significant effect on differentiation strategy.

H_{3c} Organizational innovativeness- proactivity has a significant effect on focus strategy.

H₄ Organizational innovativeness- openness to change and innovation has a significant effect on competitive strategies.

H_{4a} Organizational innovativeness- openness to change and innovation has a significant effect on cost leadership strategy.

H_{4b} Organizational innovativeness- openness to change and innovation has a significant effect on differentiation strategy.

H_{4c} Organizational innovativeness- openness to change and innovation has a significant effect on focus strategy.

H₅ Organizational innovativeness- future orientation has a significant effect on competitive strategies.

H_{5a} Organizational innovativeness- future orientation has a significant effect on cost leadership strategy.

H_{5b} Organizational innovativeness- future orientation has a significant effect on differentiation strategy.

H_{5c} Organizational innovativeness- future orientation has a significant effect on focus strategy.

H₆ Organizational innovativeness- risk taking has a significant effect on competitive strategies.

H_{6a} Organizational innovativeness- risk taking has a significant effect on cost leadership strategy.

H_{6b} Organizational innovativeness- risk taking has a significant effect on differentiation strategy.

H_{6c} Organizational innovativeness- risk taking has a significant effect on focus strategy.

5.7. TARGET POPULATION

For a research, the universe is the group in which the researcher forms the field of study, selects the sample, from which the data are obtained, and finally can generalize the results obtained from these data. The sample, on the other hand, refers to a sub-element group consisting of a certain number of elements from the universe, which can represent the universe they were selected for a study (Altunışık et al., 2010).

To obtain realistic and consistent data, the information to be based on must be reliable and detailed. For this study, in order to examine the effect of organizational innovativeness on competitive strategies, it was necessary to have information about the specific characteristics of companies in the life sciences sector as well as their general characteristics. The universe of the study was chosen as the universe where it is believed that the most accurate results can be obtained for this study. In other words, it has been chosen as this universe because both innovativeness and competition are intense.

5.7.1. Universe and Sampling Frame

The universe of this study consists of companies operating in the life sciences sector in the provinces of Istanbul, Kocaeli, Samsun, Ankara and Gaziantep. The majority of life sciences companies in Turkey operate in Istanbul. However, Samsun province has a past experience in medical clustering and medical device production. There is also a medical cluster in Middle East Industry and Trade Center Organized Industrial Zone (OSTİM OSB). Gaziantep is also the province with the highest number of industrial zones in our Southeastern Anatolia Region. Due to the strong personal connections of the researcher, this province was included in the scope of the research.

A total of 534 companies were reached through Istanbul Association of Research-Based Pharmaceutical Manufacturers (35 Pharmaceutical Companies), Technopark Istanbul (82 companies) and Yıldız Technical University-Yıldız Technopark life science companies (40 companies), all life science companies operating in Ankara OSTİM OSB (101 companies), all life science companies affiliated to Medical Industry Innovation Cluster Association (MEDİKÜM)-Samsun (197 companies), health commissions of Turkey's leading business associations (79 companies).

In addition, Turkish Health Industry Employers' Association (SEİS), T.C. Ministry of Economy, Istanbul Chemicals and Products Association and Cosmetics Industry (İKMİB), in addition to major players in the Turkish cosmetics industry such as L'Oreal, Procter and Gamble, Unilever, Avon etc., local companies such as Evyap, Kopaş Kozmetik, Erkul Kozmetik almost all of the companies and pharmaceutical companies were included in the sample. In this context, the researcher has reached 280 companies covering the life sciences sector.

5.7.2. Sample and Sampling Technique

Since the number in the universe is not known exactly, an estimated number of universes has been determined. The formula for determining the number of samples developed by Sekaran (2003) was used to determine the number of samples that could represent the research population. At the beginning of the research, the life sciences sector was determined as 1800 people. An estimated 350-450 participants were expected to attend. The total number of companies that the researcher reached directly as a company was $534 + 280 = 814$ companies. It was thought that a minimum of two people, one manager and one employee from each company, would participate. In some companies,

more than four people participated. However, considering a minimum of two people, the sample frame was determined as 1628 people. At the end of the research, a total of 434 data returns were obtained.

Table 5.2. Table for Determining the Number of Samples

Population Size	0.03 Sampling Error			0.05 Sampling Error			0.10 Sampling Error		
	p=0,5 q=0,5	p=0,8 q=0,2	p=0,3 q=0,7	p=0,5 q=0,5	p=0,8 q=0,2	p=0,3 q=0,7	p=0,5 q=0,5	p=0,8 q=0,2	p=0,3 q=0,7
100	92	87	90	80	71	77	49	38	45
500	341	289	321	217	165	196	81	55	70
750	441	358	409	254	185	226	85	57	73
1.000	516	406	473	278	198	244	88	58	75
2.500	748	537	660	333	224	286	93	60	78
5.000	880	601	760	357	234	303	94	61	79
10.000	964	639	823	370	240	313	95	61	80
25.000	1023	665	865	378	244	319	96	61	80
50.000	1045	674	881	381	245	321	96	61	81
100.000	1056	678	888	383	245	322	96	61	81
1.000.000	1066	682	896	384	246	323	96	61	81
100.000.000	1067	683	896	384	245	323	96	61	81

(Source: Yazıcıoğlu and Erdoğan, 2014)

Table 5.2. shows that the sample size representing the population at the 95% confidence interval should be 217 participants for a population of 500 units. Therefore, it was evaluated that a sample number of 301 people would be sufficient for this thesis study (Yazıcıoğlu and Erdoğan, 2014).

The research population consists of approximately 1628 people working in organizations (private, public-local) serving in the life sciences industry. A total of 800 questionnaires were distributed using the simple random sampling method, and 434 of them were returned. 127 questionnaires that were deemed to be inappropriate within the scope of the research were excluded from the research and the sample of the study was accepted as 307. As seen in Table 5.2. it is seen that the sample size representing the universe in the 95% confidence interval should be 333 participants for a universe of 2500 units. Therefore, it was evaluated that a sample number of 307 people would be sufficient for this thesis study (Yazıcıoğlu and Erdoğan, 2014: 89).

5.8. DATA COLLECTION INSTRUMENTS AND PROCEDURE

The survey technique used in the field of social sciences is a very effective method to collect sufficient precise data about more than one variable. A research questionnaire is a data collection mechanism that reveals what is required of the researcher. Accordingly, the researcher should know how to measure the relevant variables determined for his research. The questionnaire has the most key role in a study (Sekaran, 1992).

Surveys provide adaptive data for statistical analysis from a study. Of course, the researcher carries out his research with the data obtained from the questionnaires. The researcher can thus distinguish and examine the complex relationships among many variables. The purpose of the survey is to collect and record primary research data. A good survey should meet research objectives, obtain valid and reliable data from participants, facilitate data processing, and engage and maintain participant engagement. In this context, the researcher should determine the research questionnaire in a way that will provide him with the most accurate data.

Heiman (1998), when designing an interview or questionnaire, it is necessary to search the strategic literature for available questionnaires and tests. In other words, the researcher should examine similar studies related to his/her subject in detail and get a broad idea about his/her survey. The advantage this will give the researcher is that their reliability and validity have already been established. After these examinations, the researcher can create his own questions if he wishes. However, O'Brein (1995) noted that there are obvious benefits to using or adopting existing scales/scales rather than developing something entirely new.

During the survey development phase, the researcher tries to find survey items from existing studies (scientific articles and thesis studies) in the literature. It is valid if the question used in the survey measures what the researcher intends to measure. Therefore, validity can only be measured if the purpose or intentions of the question are known. A valid question will always be reliable. However, a reliable measurement may not guarantee the validity of the question. For this reason, previously developed model studies (in different or similar fields) regarding the variables included in the research were selected for the preparation of the research questionnaire.

In addition, it was discussed in detail with academicians and experts specialized in their fields and the most appropriate measurement models for the research topic were determined. The questionnaire of the study was developed after an extensive literature review and a preliminary interview with some managers in the life sciences sector in accordance with the title of the thesis.

The determined model measurement tools were translated into Turkish together with academicians who are experts in English translation and who have a good command of the literature of the research subject. After the completion of the translation process,

opinions were exchanged with the senior/middle level managers (20 managers) from the companies with which we are in close relationship, regarding the intelligibility of the expressions in the questionnaire that was tried to be developed. Necessary adjustments were made in line with the criticisms made about the theoretical statements.

5.8.1. Primary Data Collection Method

The scale mentioned in the previous section was created to collect the data. Afterwards, an application was made to the Ethics Committee of Istanbul Okan University and an opinion was received on whether there was an ethical problem in the application of the scale. In the next step, the contact information of the technopark and all business organizations in the research universe were collected. For this purpose, the websites of the relevant business organizations and the researcher's own personal links are used. Then, the researcher personally went to some of the business organizations in the sample and applied the questionnaire.

In business organizations other than; a survey form created on a web-based survey platform was sent to the accepting managers. The web-based questionnaire was sent to some companies via e-mail and to others by telephone via WhatsApp groups. During the application of the questionnaire, it was especially emphasized that the participation in the study was completely voluntary, the data obtained would not be used for any purpose other than the relevant research and would not be shared with any person or institution. Due to the COVID-19 pandemic, which affected the whole world at the beginning of 2020, a survey form was left to the companies that could not be on site or that were working remotely, and then the companies were visited and the filled form was taken again.

The questionnaire form consists of three parts. In the first part, there are statements to measure five sub-dimensions of organizational innovativeness, consisting of 39 propositions. In the second part, there are statements to measure the three sub-dimensions of competitive strategies consisting of 16 propositions. In the third part, there is information about the demographic characteristics of the participants.

A 5-stage Likert scale was used to evaluate the survey questions regarding the variables of the study. The Likert scale is one of the most widely used attitude scaling techniques. This scale allows participants to rate the intensity of their views. Within the scope of the developed questionnaire, the participants rated the propositions in the

questionnaire form presented to them from 1 to 5 (1- Strongly Disagree, 2- Disagree, 3- Moderately Agree, 4- Agree, 5- Strongly Agree) positioning on the scale and the propositions. They were asked to indicate their degree of agreement or disagreement.

5.8.2. Obtaining Data with Questionnaire

In order to reach the contact information of all the companies that make up the research universe, the official internet addresses of the companies and other relevant institutions and the personal links of the researcher were used. Communication-correspondence-mail addresses, etc., through the official web page of the institutions has been obtained. The data collection process took approximately 4 months (between December 2021 and April 2022).

In order to save time, the survey regions were determined beforehand. Appointments were requested by calling the managers, and questionnaires were filled out in the form of one-on-one interviews with those who were available. In particular, an appointment was requested from the companies to be visited for the survey study carried out in Technopark Istanbul.

After making an appointment with special permission, the surveys were conducted face-to-face by going to the companies and determining the number of people according to the company's recommendation.

All companies operating in the life sciences industry were visited within Teknopark Istanbul for a month. Participants who were not available on the same day were asked to fill in a questionnaire by leaving their office, and the researcher then received the questionnaires filled in this way. This study was carried out in the same way for pharmaceutical and biotechnology companies operating in Istanbul.

As a result of the data collection process, a total of 434 questionnaires were obtained. Approximately 200 of these questionnaires were obtained through face-to-face interviews. 127 of the questionnaires, which were previously left by the researcher and taken later, were excluded from the data set because they did not show internal consistency. Ultimately, the data set consisted of 434 survey studies. This amount (434/1628) was considered sufficient for the number of samples that could represent the research population.

In terms of social sciences, a survey return percentage of 20% is generally accepted as good. On the other hand, there is no generally accepted minimum response rate in industry

surveys (Dillman, 2000). The population-level response rate of the questionnaires in this study was 26% (434/1628).

It can be said that the life sciences sector is one of the most difficult sectors in terms of obtaining data for a scientific study. The main reason for this is that both competition and innovation are intense in this sector. However, considering the high number of questions in the survey and the target audience of the research, it can be said that the response rate of the survey is sufficient.

5.9. SCALE DEVELOPMENT FOR THE RESEARCH

Studies carried out so far, it is seen that there are many different scales belonging to the variables in the research model. In order to comply with the conceptual framework of the research and to choose the scales to be used in the collection of the data of the study, the scales were determined by interviewing expert academicians.

Questionnaire technique was preferred in the collection of research data. Questionnaire technique is frequently applied to collect primary data in researches in social sciences. In this technique, various questions are asked to the participants in the universe and sample of the study, according to the hypotheses or research questions predefined by the researcher. Thus, systematic data collection is ensured (Balçı, 2015).

The questionnaire applied to the participants consists of two main parts. In the first part, there is the scale related to the variable containing the five sub-dimensions of the concept of organizational innovativeness, and in the second part, the scale related to the variable containing the three sub-dimensions of competitive strategies. Detailed information about each of these scales in the questionnaire form used in data collection is presented below.

5.9.1. Scale for Organizational Innovativeness

Three separate studies were used to measure the five dimensions of Organizational Innovativeness. The first of these belongs to Shoham et al., (2012). In order to determine the level of organizational innovation perceived by employees in businesses, Shoham et al. (2012) and validated, consists of five sub-dimensions. Within the scope of this study, this scale was preferred since it was desired to measure five sub-dimensions of organizational innovativeness. Another study benefited from belongs to Avallone and

Paplomatas (2005), which measures openness to change and innovation in detail. Apart from these two studies, it belongs to Wang and Ahmed, (2004) in order to determine the survey questions more comprehensively and in detail. The scale expressions of the five sub-dimensions of organizational innovativeness are discussed below, respectively. These scales are shown in Table 5.3.

Table 5.3. Scales Used For The Variables Of The Five Sub-Dimensions Of Organizational Innovativeness.

Authors	Article	References
Shoham, A., Vigoda-Gadot E., Ruvio, A. and Schwabsky, N, (2012)	Testing an Organizational Innovativeness Integrative Model Across Cultures.	Journal of Engineering and Technology Management, 29: 226-240.
Avallone, F. and Paplomatas, A, (2005)	Salute Organizativa.	Psicologia del benessere nei contesti lavorativi, Cortina, Milano
Wang, C.L. and Ahmed, P.K, (2004)	The Development And Validation Of The Organisational Innovativeness Construct Using Confirmatory Factor Analysis.	European Journal of Innovation Management, Vol. 7 No. 4, 303-313.
Farnese, M.L. and Livi, S, (2016)	How Reflexivity Enhances Organizational Innovativeness: The Mediation Role of Team Support for Innovation and Individual Commitment.	Knowledge Management Research and Practice, 14, 525-536.

In this study, organizational innovation consists of creativity, proactivity, openness to change and innovation, risk taking and future orientation variables. The scales applied by Shoham et al., 2013, Wang and Ahmed, 2004 and Avallone and Paplomatas (2005) were adapted to the study in order to measure the organizational innovativeness-openness to change-innovation variable. But for the other four variables of OI – creativity, proactivity, future orientation and risk taking – scales applied by Shoham et al., 2013 and Wang and Ahmed, 2004 were adapted to the study. Accordingly, the draft scale consists of 39 items in total. These are explained below for each variable.

The scales applied by Shoham et al., 2013 and Wang and Ahmed, 2004 were adapted to the study in order to measure *the organizational innovativeness - creativity* variable. Accordingly, the expressions in the scale are as follows:

1. Creativity is encouraged in our company.
2. In our company, managers expect us to be skilled problem solvers.
3. We constantly strive to develop and offer new or improved services in our company.
4. Our ability to work creatively in our company is respected by leaders.
5. We are encouraged to use original approaches when dealing with problems in our company.
6. Compared with our competitors, our products are revolutionary in the market.

7. Our company's latest new product promotion required a creative and new form of advertising and promotion.

8. Over the past five years, our company has developed many new management approaches.

9. In our company, we are encouraged to think and act in new ways when we cannot solve a problem using traditional methods.

The scales applied by Shoham et al., 2013, Wang and Ahmed, 2004 and Avallone and Paplomatas, 2005 were adapted to the study in order to measure *the organizational innovativeness - openness to change and innovation* variable. The article belonging to Avallone and Paplomatas, 2005 was accessed through the article of Farnese and Livi, 2016. Accordingly, the expressions in the scale are as follows:

1. Our company is open and sensitive to changes.
2. Our company is often at the cutting edge of technology in introducing new products and services.
3. Compared to our competitors, our company is changing its production methods at a rapid pace.
4. Our company is careful to confront the experience of other organizations.
5. Our company is sensitive to adopt the demands of customers/users.
6. Our company is careful to expand its own competencies with new ones.
7. Our company encourages its employees to develop innovative skills.
8. Our company attaches importance to establishing cooperative relations with other organizations.
9. Our company is careful about testing new working methods.

The scales applied by Shoham et al., 2013 and Wang and Ahmed, 2004 were adapted to the study in order to measure *the organizational innovativeness - future orientation* variable. Accordingly, the expressions in the scale are as follows:

1. Our company creates a realistic set of future goals for itself.
2. Our company effectively ensures that all managers and employees share the same vision of the future.
3. Our company conveys a clear sense of future direction to employees.
4. All departments and employees in our company have a realistic vision for the future.

5. Our future investments in new machinery and equipment in our company are significant compared to our annual turnover.

6. Our future investments in new production methods are significant compared to our annual turnover.

The scales applied by Shoham et al., 2013 and Wang and Ahmed, 2004 were adapted to the study in order to measure *the organizational innovativeness – risk taking* variable. Accordingly, the expressions in the scale are as follows:

1. Our company believes that higher returns are worth taking higher risks.
2. Our company encourages innovative strategies, knowing well that some will fail.
3. Our company likes to take big risks.
4. New products and services in our company often present us with new competitors.
5. Our company's key executives are willing to take risks to seize and explore growth opportunities "by chance".
6. We are willing to try new ways of doing things in our company and look for unusual, original solutions.

The scales applied by Shoham et al., 2013 and Wang and Ahmed, 2004 were adapted to the study in order to measure *the organizational innovativeness – proactivity* variable. Accordingly, the expressions in the scale are as follows:

1. We are constantly looking for new opportunities for our company.
2. In our company, we take the initiative to shape the environment for us.
3. Our company usually takes the first place in the market when promoting new products and services.
4. We often take the initiative by introducing new administrative techniques.
5. Our new products and services are often perceived by customers as very new.
6. Compared to our competitors, our company has been faster in bringing new products or services to market in the last five years.
7. The nature of the production process in our company is new compared to our main competitors.
8. The top management in our company is very careful in adopting innovative ideas.
9. In our company, senior managers constantly seek unusual, new solutions to problems by using "idea guys".

In this study, the scale adaptation and validation study of the organizational innovativeness scale, which has not been validated in Turkish before, was conducted (Brislin et al., 1973). The scale adaptation study was carried out by following the five-stage model developed by Bayık and Gürbüz (2016), taking into account the principles of the International Test Commission (ITC) (Bayık and Gürbüz, 2016). Accordingly, the organizational innovativeness scale used in the study was first translated into the target language, the scale translated into the target language was translated back from the target language to the original language, the opinions of experts in the field were taken and a pre-test was conducted. Finally, a pilot study was conducted to evaluate the reliability and validity of the scale. These stages are; For the organizational innovativeness scale, it was first translated into Turkish by a faculty member with academic experience in English language and literature. The Turkish scale prepared in this direction was examined by academics who have experience in the field of social sciences and are experts in the field of Turkish and English, and the Turkish scales formed as a result of the examination were translated into English again by another academician who has academic experience in the field of English language and literature. translated. The scales translated into English were compared with the original scale in terms of originality and presented to the expert opinion again. The final version of the scale, whose expert opinions were taken, was revealed and the pre-test phase was started. After the final corrections were made on the expressions of the scales obtained as a result of the pre-test, the scale was given its final form. Finally, it was used in the research model in order to be used in a valid and reliable way in Turkish in line with the validity and reliability analyzes of the scale and the findings. Organizational innovativeness draft scale is shown in Table 5.4.

Table 5.4. Organizational Innovativeness Draft Scale

No	Scale Expressions
Creativity	
OI1	Creativity is encouraged in our company.
OI2	In our company, managers expect us to be skilled problem solvers.
OI3	We are constantly trying to develop and offer new or improved services in our company.
OI4	Our ability to work creatively in our company is respected by leaders.
OI5	We are encouraged to use original approaches when dealing with problems in our company.
OI6	Compared to our competitors, our products are revolutionary in the market.
OI7	Our company's latest new product promotion required a creative and new form of advertising and promotion.
OI8	Over the past five years, our company has developed many new management approaches.
OI9	In our company, when we are unable to solve a problem using traditional methods, we are encouraged to think and act in new ways.

Table 5.4. Organizational Innovativeness Draft Scale (Continue)

Openness to Change and Innovation	
OI10	Our company is open and sensitive to changes.
OI11	Our company is often at the cutting edge of technology in introducing new products and services.
OI12	Compared to our competitors, our company is rapidly changing its production methods.
OI13	Our company is careful to confront the experiences of other organizations.
OI14	Our company is sensitive to adopting the demands of customers/users.
OI15	Our company is careful to expand its competencies with new ones.
OI16	Our company encourages its employees to develop innovative skills.
OI17	Our company attaches importance to establishing cooperative relations with other organizations.
OI18	Our company is careful about testing new ways of working.
Future Orientation	
OI19	Our company creates a realistic set of future goals for itself.
OI20	Our company effectively ensures that all managers and employees share the same vision of the future.
OI21	Our company conveys a clear sense of future direction to employees.
OI22	All departments and employees in our company have a realistic vision for the future.
OI23	Our future investments in new machinery and equipment in our company are significant compared to our annual turnover.
OI24	Our future investments in new production methods are significant compared to our annual turnover.
Risk Taking	
OI25	Our company believes that higher returns are worth taking higher risks.
OI26	Our company encourages innovative strategies, knowing well that some will fail.
OI27	Our company likes to take big risks.
OI28	New products and services in our company often present us with new competitors.
OI29	Our company's key executives are willing to take risks to seize and explore growth opportunities "by chance".
OI30	We are ready to try new ways of doing things in our company and look for unusual, original solutions.
Proactivity	
OI31	We are constantly looking for new opportunities for our company.
OI32	In our company, we take the initiative to shape the environment for us.
OI33	Our company is usually first in the market for new product and service promotions.
OI34	We often take the initiative by introducing new administrative techniques.
OI35	Our new products and services are often perceived by customers as very new.
OI36	Compared to our competitors, our company has been faster in bringing new products or services to market in the last five years.
OI37	The nature of the production process in our company is new compared to our main competitors.
OI38	Executive management in our company is very careful in adopting innovative ideas.
OI39	In our company, senior managers constantly seek unusual, new solutions to problems, using "idea guys".

5.9.2. Scale for Competitive Strategies

Considering the studies on competitive strategies, it is possible to reach many studies from different perspectives (Hatipoğlu, 2011). In this study, it was aimed to measure the generic competitive strategies of Porter (1980; 1985). The scale of competitive strategies is divided into three different subcategories for the operationalization of variables: (1) cost leadership, (2) differentiation, and (3) focus strategy types. In this context, in order

to ensure that the analyzes are reliable and valid, a scale used in previous and current international studies has been used.

Competitive strategies scale was adapted from Arıkan, 2021 doctoral thesis. The items of the scale and the studies in which it was compiled are given in Table 5.5. Competitive Strategies Scale. Especially in the doctoral studies conducted in the last ten years, the scale consisting of 3 dimensions and 16 statements stated below was used, since an agreement was reached on these items and the results obtained were reliable. The scale was pre-accepted in this form. However, later on, the validity and reliability study of the scale was conducted and confirmed.

Table 5.5. Competitive Strategies Scale.

DIFFERENTIATION	
CS1: We strive to differentiate our products	Acquaah and Ardekani, 2008; Jusoh and Parnell, 2008; Allen and Helms, 2006; Panayides, 2003; 2009.
CS2: We strive to differentiate our services	Acquaah and Ardekani, 2008; Jusoh and Parnell, 2008; Panayides, 2003; Allen and Helms, 2006; 2009.
CS3: We try to make a difference in our designs	Ailen and Helms, 2006; Bulut, 2007; Bulut et al., 2009; Ermiş, 2007 ; 2009 ; Hatipoğlu, 2011; Genç, 2016.
CS4: We are trying to make a difference in our distribution channels	Dess and Davis, 1984; Eraslan, 2008; Liu, 2009; Acquaah and Ardekani, 2008; 2009; Hatipoğlu, 2011; Genç, 2016
CS5: We try to differentiate our delivery speed	Aytekin, 2003; 2009; Hatipoğlu, 2011; Genç, 2016
CS6: We try to make a difference by branding	Dess ve Davis, 1984; Allen ve Helms, 2006; Yamin vd., 1999; Eraslan 2008 ; 2009 ; Hatipoğlu, 2011; Genç, 2016
COST LEADERSHIP	
CS7: We reduce our purchasing costs	Panayides, 2003; Eraslan, 2008; Allen and Helms, 2006; Liu, 2009; Hatipoğlu, 2011; Genç, 2016.
CS8: We reduce our production costs	Panayides, 2003; Eraslan, 2008; Liu, 2009; Aytekin, 2003; Jusoh and Parnell, 2008; 2009; Hatipoğlu, 2011.
CS9: We reduce our marketing costs	Panayides, 2003; Eraslan, 2008; 2009 ; Hatipoğlu, 2011; Genç, 2016.
CS10: We reduce our financing costs	Acquaah and Ardekani, 2008; 2009; Hatipoğlu, 2011; Genç, 2016.
CS11: We reduce our personnel costs	Wang and Chien, 2006; Aytekin, 2003: 2009; Hatipoğlu, 2011; Genç, 2016.
CS12: We reduce our maintenance costs	Powers and Hahn, 2004; Eraslan, 2008; 2009; Hatipoğlu, 2011; Genç, 2016.
FOCUS	
CS13: We focus on a specific product only	Powers and Hahn, 2004; Eraslan, 2008; Işık, 2010; 2009; Hatipoğlu, 2011; Genç, 2016.
CS14: We only focus on a specific product line	Ailen and Helms, 2006; Liu, 2009; Işık, 2010; 2009; Hatipoğlu, 2011; Genç, 2016
CS15: We focus only on a specific customer group	Dess and Davis, 1984; Allen and Helms, 2006; Panayides, 2003; Yamin vd., 1997; Eraslan, 2008; Liu, 2009; 2009;
CS16: We focus on a specific area only	Dess and Davis, 1984; Powers and Hahn, 2004; Eraslan, 2008; Işık, 2010 2009; Hatipoğlu, 2011; Genç, 2016

(Source: Arıkan, 2021)

5.10. RESEARCH LIMITATIONS

Science, which focuses on general concepts and questions, explains the relationships among phenomena. In order to carry out healthy, valid and reliable research in scientific studies, the research subject should be narrowed and limited in certain aspects.

In other words, the studies are carried out under certain limitations, regardless of the field. Determining these limitations accurately and clearly increases the validity of the research results. This limitation can be made in terms of subject or method, as well as in terms of universe and research units.

The limitations of this study are discussed in two dimensions. These are the limitations of the research subject in terms of scope and content, and methodological limitations.

5.10.1. Limitations of the Research Subject in Terms of Scope and Content

The subject of the research examines the relationship between organizational innovativeness and competitive strategies. These fields also consist of various sub-fields within themselves. These are the five sub-dimensions under the heading of organizational innovativeness; creativity, openness to change and innovation, future orientation, proactivity and risk-taking dimensions. In competitive strategies, these dimensions consist of cost leadership, focus and differentiation.

Considering the relationships in the research model in this context, the effect of organizational innovativeness on competitive strategies was evaluated. In addition, the life sciences sector was examined as a sector within the scope of the study, and these were examined in five different categories. These consist of pharmaceutical and biotechnology, cosmetics, medical devices and clean environment technologies. In these sectors where competition is very intense, the most important limitation has been in the stage of obtaining data.

When both innovation and competition are intense sectors, companies have been meticulous and compelling to share some information. Essentially, this study was tried to be carried out through technology development zones at the very beginning. The idea that scientific studies should be carried out in technology development zones, university-industry cooperation and data flow would be easier.

However, it has been experienced that bureaucratic and other special permission procedures for these regions require a very long time. In other words, data flow and

obtaining from these regions has not been as easy as it was thought. For this reason, since the desired data could not be obtained from these regions, Technopark Istanbul and Yıldız Technical University Technopark, which operate only in Istanbul, are included in the scope. The study was later spread across Turkey and companies covering the life sciences sector were included in the scope.

5.10.2. Methodological Limitations

Another limitation is the limitations at the model and analysis level. The effect of organizational innovativeness on competitive strategies has been examined within the scope of five sub-sectors of life sciences. Data return from each sector could not be provided proportionally. Because the participation of each sector has not been proportional.

Therefore, the analysis was carried out in this context. In addition, quantitative research methods were preferred in both collection and analysis of research data, and qualitative methods were not included in the scope of the research. This is because the researcher is limited in time and does not have other financial resources to apply qualitative methods.

5.11. DATA PROCESSING AND ANALYSIS

Data processing is done with a series of actions or steps performed on the data. These; verifying, editing, transforming, integrating and extracting data into a suitable output format for further use. For example, since it does not provide internal consistency, there will definitely be data extracted in every study. Data analysis also includes actions and methods performed on data that help test hypotheses. This includes data quality assurance, statistical data analysis, modeling and interpretation of results.

Accordingly, methods used in data analysis including organizational innovativeness scale validity and reliability study and explanatory factor analysis (EFA), competitive strategies scale validity and reliability analysis, confirmatory factor analysis (CFA), competitive strategies scale confirmatory factor analysis, and organizational innovativeness scale confirmatory factor analysis are examined and considered.

5.11.1. Methods Used in Data Analysis

Multivariate statistical techniques were used to analyze the data obtained in this thesis study. SPSS 23 and AMOS 23 statistical analysis package programs were used for the analysis of the data set within the scope of the research. First of all, the accuracy of the data was examined and then the basic assumptions (Normality, Linearity, Covariance) related to the data and the analysis techniques to be applied were evaluated. After the data were recorded in the program, reliability analysis was first performed on the data. Then, in accordance with the purpose of the research, the coded data were analyzed in terms of variance, mean, frequency and percentage values that express descriptive analyzes in terms of demographic characteristics.

Explanaoratory factor analysis (EFA) was also performed to reduce a large set of measurements. In the second stage, confirmatory factor analysis (CFA) was performed using the AMOSS 23 program to test the construct validity of the scale and to evaluate the final measurements. First-level confirmatory factor analysis was performed for all variables with the AMOS 23 program. Multiple regression analysis was used to describe the relationship between dependent and independent variables.

Finally, within the scope of the research, differences tests (independent sample t-test and one-way ANOVA analysis) were conducted to test whether there was a difference between the demographic characteristics of the participants (gender, marital status, education level, age, sector of the company they work for, service area, duration of activity, duration and position of participants in the company) and the perception of the variables. The Post Hoc test was used to determine the origin of the difference for the expressions that differ according to the results of the one-way analysis of variance. The confidence interval of the data is 95% ($p=0.05$).

5.11.2. Organizational Innovativeness Scale Validity and Reliability Study and Explanatory Factor Analysis (EFA)

Factor analysis is a multi-parameter statistical technique that aims to find less conceptually meaningful new parameters by bringing together many parameters that are related to each other (Tabachnick and Fidell, 2014).

In other words, it is generally used in the field of social sciences to define psychological dimensions and to provide information about the content of these dimensions. In short, factor analysis aims to obtain a small number of variables from a

large number of variables, reducing them to one dimension and eliminating the dependency structure. The fact that Kaiser Mayer Olkin (KMO) ratios are above 50% is important for the convenience of factor analysis. In fact, the higher this ratio, the better the suitability of the data set for factor analysis. The KMO value that researchers are satisfied with is considered to be 0.7 and above (Coşkun et al., 2015). In factor KMO analysis; values range from 0 to 1. The grading of KMO values over the values they will take is shown in Table 5.4 (Sharma, 1996).

Table 5.6. KMO Values

KMO Value Sample Adequacy	
0,00 - 0,49	Unacceptable
0,50 - 0,59	Poor
0,60 - 0,69	Medium
0,70 - 0,79	Good
0,80 - 0,89	Very Good
0,90 - 1,00	Excellent

(Source: Sharma, 1996)

- **Determining the Number of Factors**

One of the most important stages of factor analysis is to determine the number of factors. At this stage, many criteria are taken into account and the number of factors is determined accordingly. These criteria are; the co-originity values of the items, the explained variances, the components matrix, the overlap values and the scree plot criteria are specified. The Barlett Test must be significant in order to perform factor analysis. In addition, the Kaiser-Meyer-Olkin (KMO) coefficient should be greater than 0.60 (Dziuban and Shirkey, 1974).

The organizational innovativeness draft scale initially consisted of 39 items. According to the findings obtained as a result of the analysis; 14 items (**Table 5.4:** 5, 7, 8, 9, 11, 12, 14, 28, 30, 31, 32, 34, 38, 39) with item-total correlations below 0.20 were excluded from the draft scale. As a result of this item analysis process, the number of items in the draft scale was reduced to 25, and the factors and item load values for these items are given in Table 5.7.

When Table 5.7 was examined, it was seen that the cumulative variance explained was 64,804% and sufficient. Those whose eigenvalues were higher than 1 were included in the evaluation, and it was evaluated that the scale had a 5-factor structure. As seen in Figure 5.10, it is seen that the structure becomes horizontal after 5 factors in the scree plot.

Table 5.7. Validity and Reliability Findings of the Organizational Innovativeness Scale and Factor Analysis Results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy					0,931	
Bartlett's Test of Sphericity			Approx. Chi-Square		6037,282	
			df		300	
			Sig.		,000	
Explained Total Variance		%64,804		Cronbach Alpha		,935
No.	Expressions		Factor Loading	Eigenvalue	Explained Variance	Cronbach Alpha
Openness to Change and Innovation						
OI21	Our company conveys a clear sense of future direction to employees.		,808	10,091	23,552	,891
OI20	Our company effectively ensures that all managers and employees share the same vision of the future.		,791			
OI22	All departments and employees in our company have a realistic vision for the future.		,762			
OI 9	Our company creates a realistic set of future goals for itself.		,695			
OI16	Our company encourages its employees to develop innovative skills.		,684			
OI10	Our company is open and sensitive to changes.		,662			
OI15	Our company is careful to expand its competencies with new ones.		,661			
OI18	Our company is careful about testing new ways of working.		,637			
OI13	Our company is careful to confront the experiences of other organizations.		,605			
OI17	Our company attaches importance to establishing cooperative relations with other organizations.		,584			
Proactivity						
OI37	The nature of the production process in our company is new compared to our main competitors.		,738	2,091	12,638	,823
OI36	Compared to our competitors, our company has been faster in bringing new products or services to market in the last five years.		,708			
OI35	Our new products and services are often perceived by customers as very new.		,695			

Table 5.7. Validity and Reliability Findings of the Organizational Innovativeness Scale and Factor Analysis Results (Continue)

OI6	Compared with our competitors, our products are revolutionary in the market.	,679			
OI33	Our company is usually first in the market for new product and service promotions.	,618			
Creativity					
OI1	Creativity is encouraged in our company.	,761			
OI3	We are constantly trying to develop and offer new or improved services in our company.	,753			
OI2	In our company, managers expect us to be skilled problem solvers.	,739	1,576	11,372	,822
OI4	Our ability to work creatively in our company is respected by leaders.	,678			
Risk Taking					
OI27	Our company likes to take big risks.	,815			
OI29	Our company's key executives are willing to take risks to seize and explore growth opportunities "by chance".	,767	1,308	10,153	,805
OI25	Our company believes that higher returns are worth taking higher risks.	,740			
OI26	Our company encourages innovative strategies, knowing well that some will fail.	,613			
Future Orientation					
OI24	Our future investments in new production methods are significant compared to our annual turnover.	,837			
OI23	Our future investments in new machinery and equipment in our company are significant compared to our annual turnover.	,759	1,136	7,088	,810
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.					

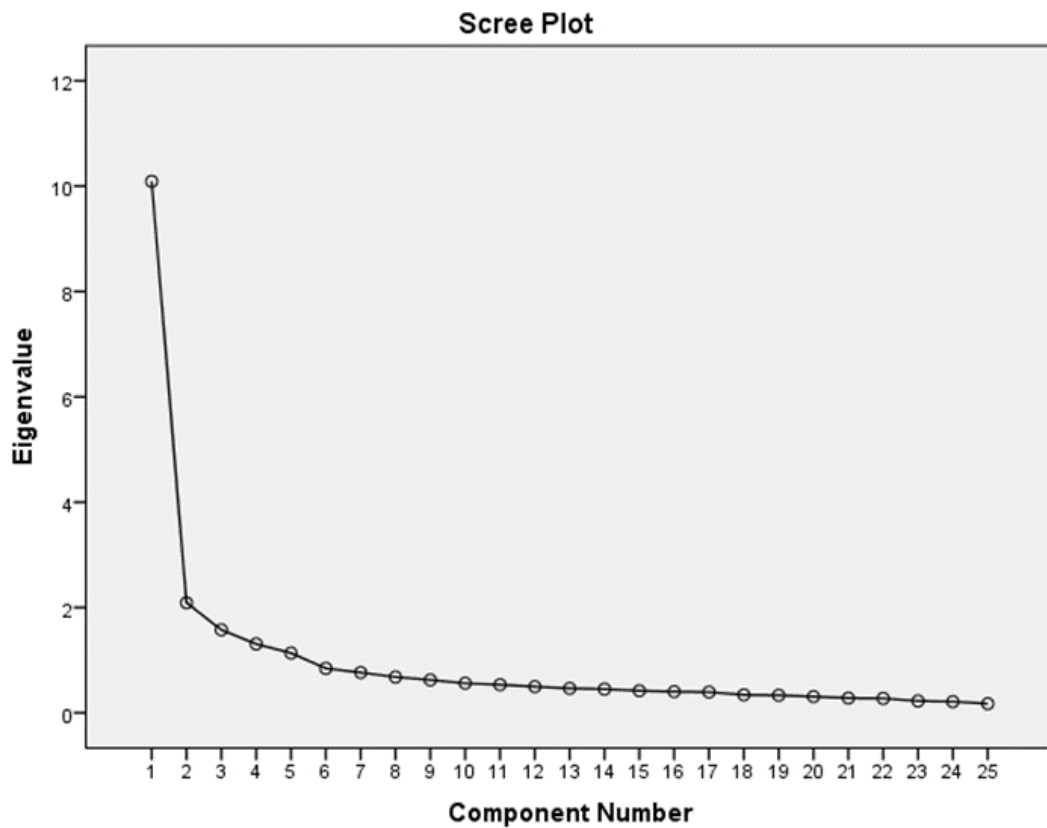


Figure 5.10. Organizational Innovativeness Scale Scree Plot Graph

When Table 5.7 is examined, it has been determined that the KMO and Bartlett test values (KMO value above 0.60 and Bartlett's Test result < 0.05) of the organizational innovativeness scale for which factor analysis was performed were at a very good level.

The 25 items included in the analysis for organizational innovativeness were grouped under 5 factors. When the scree plot in Figure 1 is examined, it is confirmed that it exhibits a horizontal position after the 5th factor and similarly, the scale has a 5-factor structure. Factors in the organizational innovativeness scale were named as Openness to Change and Innovation, Proactivity, Creativity, Risk Taking and Future Orientation. During the analysis process, the total variance of the factors regarding the scale was 64,804%.

It was determined that openness to change and innovation explains organizational innovativeness level of 23,552%, proactivity explains organizational innovativeness level of 12,638%, creativity explains organizational innovativeness level of 11,372%, risk taking explains organizational innovativeness level of 10,153%, and future orientation explains organizational innovativeness level of 7,088%. When the results of the analysis are examined, each expression in the factors of organizational innovativeness is between

0.808 and 0.584 for Openness to Change and Innovation. Our company conveys a clear sense of future direction to employees. (0.808) with the highest factor load, Our company attaches importance to establishing collaborative relationships with other organizations. (0.584) has the lowest factor loading. The expressions in the proactivity dimension ranged from 0.738 to 0.618; The nature of the production process in our company is new compared to our main competitors. (0,738) with the highest factor load, Our company is usually first in the market for new product and service promotions. (0.618) has the lowest factor loading. The expressions in the Creativity dimension, which is another dimension, are between 0.761 and 0.678; Creativity is encouraged in our company. (0.761) highest factor load, Our ability to work creatively in our company is respected by leaders. (0.678) has the lowest factor loading. The expressions in the risk-taking dimension are between 0.815 and 0.613; Our company likes to take big risks. (0.815) to the highest factor load, Our company encourages innovative strategies knowing well that some will fail. (0.613) has the lowest factor loading. Finally, the expressions in the Future Orientation dimension took the values of 0.837 and 0.759. Of these statements, Our future investments in new production methods are significant compared to our annual turnover. The factor load score of (0.837) indicates, Our future investments in new machinery and equipment in our company are significant compared to our annual turnover. (0.759), it was found to be higher than the expression. These findings show that the value ranges of the factor load are at an acceptable level and the internal consistency of the factors is good (Table 5.7).

5.11.3. Competitive Strategies Scale Validity and Reliability Analysis

The Cronbach's Alpha value of the Competitive Strategies Scale, another scale used in the study, was found to be reliable as 0.782. As can be seen in detail in Table 3, the values were found to be 0.889 in the Differentiation dimension, 0.886 in the Cost Leadership dimension, and 0.850 in the Focusing dimension. The Cronbach's Alpha value of the scale developed by Arıkan (2021) was found to be at a similar level as 0.78. According to the findings obtained as a result of the analyzes, since the item-total correlations were similar to the original study, it was not necessary to remove any item (Arıkan, 2021: 140).

The Kaiser-Meyer-Olkin (KMO) sample adequacy test result for the competitive strategies scale was found to be 0.818. As a result of the Barlett test, which was used to test the suitability of the factor analysis of the obtained data set, the competitive strategies

scale was significant ($p < 0.05$). In line with the results obtained, it was evaluated that the data set was suitable for factor analysis.

The total variance explained for the competitive strategies scale is 66,230%. The dimension with the highest explanatory power in the total variance is the dimension of differentiation and explains 24,566% of the total variance. The factor loads of the expressions in the Differentiation Dimension vary between 0.733 and 0.878. From these expressions; We strive to make a difference in our services. (0.878) to the highest factor load, We are trying to make a difference in our delivery speed. (0.733) has the lowest factor loading. Cost leadership dimension constitutes the second factor of the scale and this dimension explains 24,277% of the total variance. The factor loads of the expressions that make up the dimension vary between 0.733 and 0.856. From these expressions; We are reducing our financing costs. (0,856) to the highest factor load, We are reducing our personnel costs. (0.733) has the lowest factor loading. The third and last factor of the scale, the focus dimension, explains 17,386% of the total variance. The factor loads of the expressions that make up the dimension vary between 0.743 and 0.877. One of these statements is We focus only on a certain product group. (0.877) highest factor loading, We only focus on a certain region. The expression (0.743) has the lowest factor loading (Table 5.8).

Table 5.8. Validity and Reliability Findings of the Competitive Strategies Scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy					0,818		
Bartlett's Test of Sphericity			Approx. Chi-Square		3996,049		
			df		120		
			Sig.		,000		
Explained Total Variance			%66,230		Cronbach Alpha		,782
No.	Expressions			Factor Loading	Eigenvalue	Explained Variance	Cronbach Alpha
Differentiation							
CS2	We try to make a difference in our services.			,878	4,283	24,566	,889
CS3	We try to make a difference in our designs.			,863			
CS1	We try to make a difference in our products.			,808			
CS4	We are trying to make a difference in our distribution channels.			,763			
CS6	We try to make a difference by branding.			,752			
CS5	We try to make a difference in our delivery speed.			,733			

Table 5.8. Validity and Reliability Findings of the Competitive Strategies Scale (Continue)

Cost Leadership					
CS10	We reduce our financing costs.	,856	3,915	24,277	,886
CS8	We reduce our production costs.	,848			
CS9	We reduce our marketing costs.	,820			
CS7	We reduce our purchasing costs.	,768			
CS12	We reduce our maintenance costs.	,755			
CS11	We reduce our personnel costs.	,733			
Focus					
CS14	We only focus on a certain product line.	,877	2,399	17,386	,850
CS15	We only focus on a certain group of customers.	,841			
CS13	We only focus on a particular product.	,832			
CS16	We only focus on a certain area.	,743			
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.					

5.11.4. Confirmatory Factor Analysis (CFA)

As indicated above, the scale of competitive strategies was developed and adopted by Arıkan (2021). The scale consists of cost leadership, differentiation and focus dimensions. According to the explanatory factor analysis results for the organizational innovativeness scale, it consists of the dimensions of creativity, openness to change and innovation, risk taking, proactivity and future orientation (Meydan and Şeşen, 2015).

In this direction, confirmatory factor analysis (CFA) was performed in order to verify the factor structures of the scales. Confirmatory factor analysis models are frequently used to determine whether some observed variables constitute a latent variable or whether there is a relationship between many latent variables. Each latent variable in the model is measured by a group of observed variables (Meydan and Şeşen, 2015).

Confirmatory factor analysis is carried out in order to test the previously discovered scales in the sample subject to the research. In this direction, when the literature is examined, it is seen that the models that are basically tested in confirmatory factor analysis are divided into four. These 4 basic models are classified as single factor models, first level multifactor model, second level multifactor model and unrelated model (Meydan and Şeşen, 2015).

In confirmatory factor analysis, these four different models are tested and the most appropriate model is determined in the light of the data obtained. In particular, the goodness of fit and index values is examined in the findings obtained as a result of testing

different models of scales with more than 1 factor, and the appropriate model is decided in this way (Topçu, 2015). There are some options for evaluating model fit in confirmatory factor analysis (Bayram, 2016).

- **Standardized Root Mean Square Residual (SRMR)**

Hayashi et al. (2008), the root of the standardized mean squared error is the square root of the sum of the squares of the residuals in the correlation measure. As Kenny (2010) puts it, it is the standardized difference between observed and estimated covariance. If the calculated values are close to 0, they are considered excellent, and those less than 0.05 are considered good (Bayram, 2016).

- **Goodness of fit index (GFI)**

GFI is the first descriptive fit index developed by Jöreskog and Sorbom (1984) as an alternative to the chi-square test known as gamma-hat (γ). It shows the ratio of the variance explained by the population covariance and the ratio of the explained generalized variance to the total generalized variance. If the GFI is to be evaluated like R in the regression, the difference is related to the error variance of R, while the GFI is evaluated by the observed percentage of covariance.

- **Adjusted Goodness of Fit Index (AGFI)**

AGFI is calculated taking into account sd. It corrects the GFI value for sd according to the number of variables observed. As with the GFI, its value grows as the sample size increases. In AGFI, levels range from zero to one. Those close to one are considered good. MacCallum et al. (1997), Hayashi et al. (2008), AGFI always takes a value equal to or less than GFI (Bayram, 2016). Values close to or greater than 0.90 are considered good fit, and levels greater than 0.85 are considered acceptable (Erkorkmaz et al., 2013).

- **Fit Index Based on Independent Model**

Normed fit index (NFI) Bentler et al. (1980), this index is also negatively affected by the sample size (Erkorkmaz et al., 2013). It is based on the comparison of the χ^2 value of all variables and the χ^2 value calculated from the model created. The NFI is given by the relative position of the current model between the model and the model of the independent variables. NFI value takes a value between 0-1. Schermelleh et al. (2003), this value can never reach 1 in small samples. Values between 0.90 and 0.95 indicate a good fit, and values above 0.95 indicate a very good fit. The only drawback is that the NFI value cannot be smaller when there are additional parameters to the model. Therefore, the added

features cause its value to grow even more. Hayashi et al. (2008) and Kenny (2010) studies, this measurement should not be preferred because of its low reliability (Bayram, 2016). χ^2 indicates the χ^2 value of the independent model, F indicates the χ^2 value of the target model, χ^2/h^2 indicates the corresponding minimum fit function value (Bayram, 2016).

- **Tucker and Lewis Index (TLI)**

Tucker and Lewis index is also known as non-normed fit index (NNFI). It is known that even if the model is good when the number of individuals in the sample is low, it does not approach 1 when the NNFI is not very large. According to the studies of Arbuckle (2007), Hayashi et al., (2008) and Kenny (2010), the negativity is corrected when the degrees of freedom are added to the TLI (NNFI) model (Bayram, 2016).

In this index, above 0.95 indicates a very good fit, in many literature, above 0.85 indicates acceptable fit, and above 0.97 indicates perfect fit. Here, is the target model statistic, is the target model's degrees of freedom, is the base model statistic, is the base model's degrees of freedom.

- **Comparative Fit Index (CFI)**

Comparative fit index compares the function of the customized model with the fit function created from the other model (Erkorkmaz et al., 2013). Among the fit indices based on the independent model, CFI is the most used index value since NFI estimates below the value and NFI overestimates the value. Hayashi et al. (2008), Kenny (2010), if the CFI value is greater than 1, it should be evaluated as 1, and if it is less than 0, it should be evaluated as zero. If it outputs less than 1, then it always has a greater value than TLI. CFI takes values ranging from 0 to 1. According to the studies of Bryne (2001), Hoyle, (1995), Blunch (2008) and Kenny (2010), values between 0.95 and 0.97 indicate acceptable fit and emphasize that the model with higher CFI has stronger fit (Bayram, 2016).

- **Root Mean Square Error of Approximation (RMSEA)**

Here, values equal to or less than 0.05 are considered good, values between 0.05 and 0.08 are acceptable, and values equal to or above 0.10 are considered bad. Kline (2005), Hayashi et al., (2008), Hooper et al. (2008), Blunch, (2008) and Kenny (2010) studies, one of the biggest advantages of this index is that the confidence interval can be calculated. The RMSEA value can be deceptive when the SD is small and the population

size is not sufficient. For example, a chi-square value of 2.098, which is not statistically significant, with 1 degree of freedom and a sample size of 70 gives a RMSEA value of 0.126 (Bayram, 2016). Here, $F(S, \sum(\theta))$ denotes the minimum fit function, df degrees of freedom.

• **Fit (Compliance) Index Based on Knowledge Criteria**

Raykov et al. (2006), Hayashi et al., (2008), Blunch (2008) and Kenny (2010) these can be given as Akaike information criterion, consistent Akaike information criterion and Bayesian information criterion. According to Bryne (2010), all these fit index should take smaller values for the hypothesized model than the independent and saturated model levels (Bayram, 2016).

• **Akaike Information Criteria (AIC)**

The Akaike information criterion does not consider the sample size and only includes the degrees of freedom in the calculation. Smaller values of the Akaike information criterion indicate better fit. Since it cannot be standardized, its interpretation for the model is not appropriate. For two models estimated from the same data, the smaller AIC is preferred. It is a criterion used to estimate the best number of parameters in the model. Here, q denotes the number of unknown parameters to be solved or estimated. The consistent Akaike information criterion (CAIC) is calculated by directly taking the sample size into account, in contrast to the AIC. It is a method that estimates the best number of parameters like AIC. The small-calculated values indicate a good fit. Here N is the sample volume, q is the number of predicted parameters.

• **Bayes Information Criteria (BIC)**

Unlike AIC, BIC includes sample size. It is used to compare the fit of different classes. It cannot be standardized and interpreted for the model as in AIC. BIC taking low level values is classified as good. In Figure X, the limit values of the fit indices are given collectively.

• **Chi-Square Fit Test (Chi-Square Goodness of Fit, χ^2)**

The Chi-Square Fit Test is the result of the fit between the data and the model. In this context, the hypothesis is tested whether the model developed with the chi-square (χ^2) test and the model that emerges in the covariance structure of the observation variables are different. As long as the chi-square statistical value found is small, the fit is considered good. In addition, since the chi-square is a difference value, this value being significant

indicates that the two models differ significantly from each other. That is, if the chi-square is not significant and is less than 3, it reflects the fit of the model. The degrees of freedom (SD) is an important criterion in the chi-square test. Chi-square value can be significant in the model where SD is large. However, in this case, the ratio of chi-square to SD is used to evaluate the model, rather than whether the chi-square is meaningful or not (Şimşek, 2007; Meydan and Şeşen, 2015).

• **Root Mean Square Error of Approximation (RMSEA)**

It varies between 0 and 1 values. It is expected to give values close to zero (minimum error between the observed and produced matrices). A value equal to or less than 0.05 indicates a perfect fit, and values up to 0.08 indicate an acceptable fit (Anderson and Gerbing, 1984; Browne and Cudeck, 1993; Sümer, 2000; Meydan and Şeşen, 2015).

• **Root Mean Square Residual (RMR)**

RMR is defined as the square root of the arithmetic mean of the squares of the differences between the obtained and covering correlations. For values ranging from 0 to 1, the values closest to zero indicate that the model fits (Kline, 2004; Meydan and Şeşen, 2015: 35).

A value equal to or less than 0.05 indicates perfect fit, and values up to 0.08 are acceptable (Anderson and Gerbing, 1984; Sümer, 2000; Meydan and Şeşen, 2015).

• **Goodness Of Fit Index (GFI)**

It is a measure related to the amount of variance and covariance that can be explained by the model. It shows the measurement ratio of the goodness of fit index and the covariance matrix of the model in the sample. The GFI value ranges from 0 to 1. While a GFI over 0.90 is considered a good fit; Values above 0.85 are considered acceptable (Meydan and Şeşen, 2015).

• **Incremental Fit Index (CFI, NFI and NNFI)**

Incremental fit index are examined with the assumption that there is no relationship between the latent variables (independence model, absence model) with the fit of the advanced model. Of these, values of 0.90 and above for the Comparative Fit Index (CFI) index good fit. Values of 0.95 and above for the Normed Fit Index (NFI) and Non-Normed Fit Index (NNFI) indicate good fit, while values between 0.90-0.94 indicate acceptable fit. (Sümer, 2000; Topçu, 2015).

AMOS 23.0 version software was used to test the accuracy of both scales. Since the AMOS program does not work in the presence of missing value, first of all, it was checked whether there was missing data by frequency analysis and after it was seen that there was no missing data, the analysis was started.

5.11.4.1. Competitive Strategies Scale Confirmatory Factor Analysis

The results of the validity and reliability analysis of the competitive strategies scale that we obtained in our research and the findings related to the factor structures are given in Figure 5.11 and Table 5.9. In line with the data obtained, the fit index of the model ($\chi^2/sd=2.949$, NFI=0.929, CFI=0.952, TLI=0.941, IFI=0.952, RMSEA=0.067) show the accuracy of the competitive strategies scale.

Table 5.9. Competitive Strategies Scale Confirmatory Factor Analysis Results

Compliance Measures	Good Compliance	Acceptable Compliance	Calculated Value	Compliance Status
χ^2			286,005	
Df (p)			97 (0,000)	
χ^2/df	≤ 3	$\leq 4-5$	2,949	Good compliance
RMSEA	$0 < RMSEA < 0,05$	$0,05 \leq RMSEA \leq 0,08$	0,067	Acceptable compliance
NFI	$0,95 \leq NFI \leq 1$	$0,90 \leq NFI < 0,95$	0,929	Acceptable compliance
NNFI (TLI)	$0,95 \leq NNFI \leq 1$	$0,90 \leq NNFI < 0,95$	0,941	Acceptable compliance
CFI	$0,97 \leq CFI \leq 1$	$0,90 \leq CFI < 0,97$	0,952	Acceptable compliance
IFI	$0,95 \leq IFI \leq 1$	$0,90 \leq IFI < 0,95$	0,952	Acceptable compliance
GFI	$0,90 \leq GFI \leq 1$	$0,85 \leq GFI < 0,90$	0,924	Good compliance

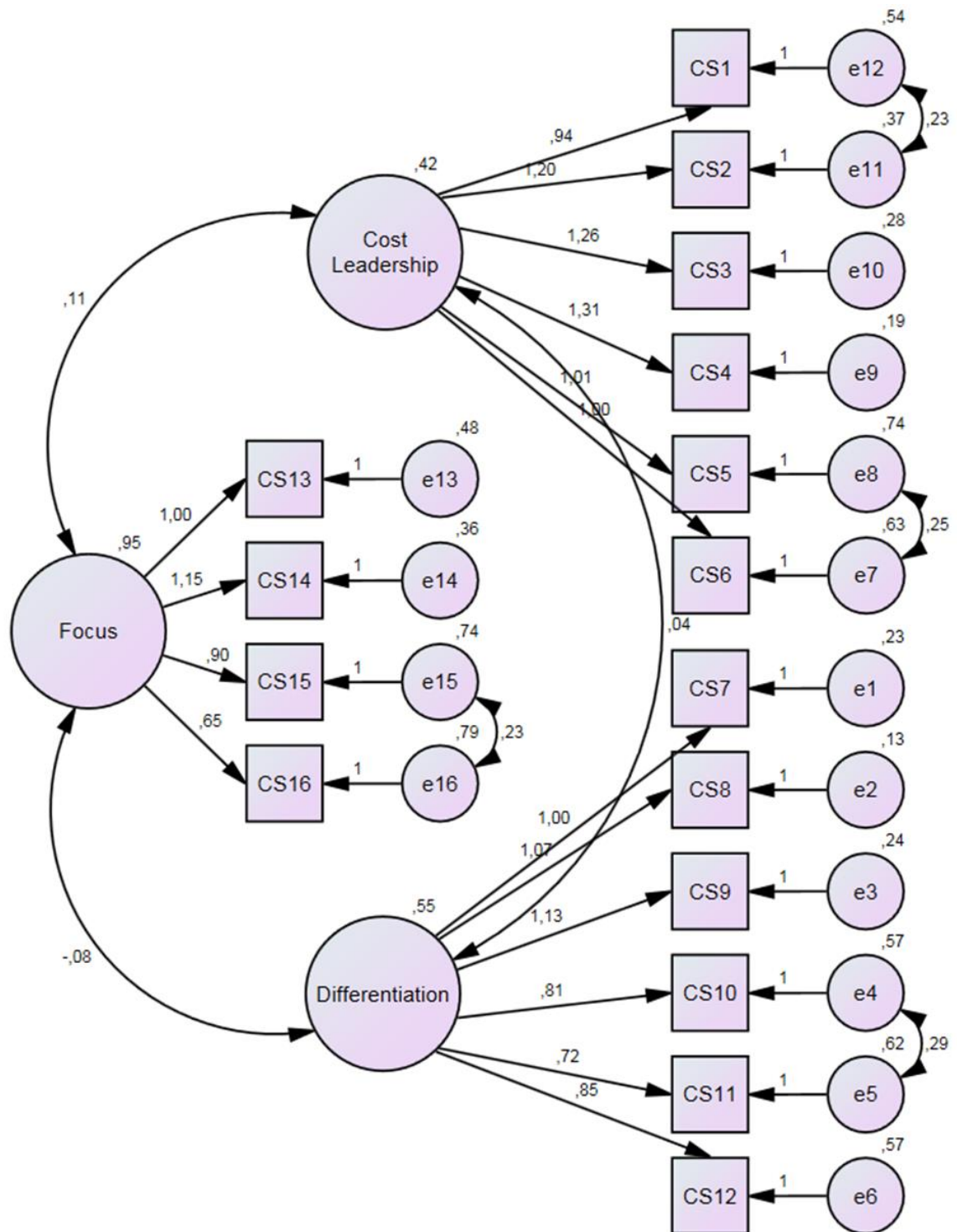


Figure 5.11. Competitive Strategies Scale Confirmatory Factor Analysis Model

5.11.4.2. Organizational Innovativeness Scale Confirmatory Factor Analysis

The results of the validity and reliability analysis of the organizational innovativeness scale that we obtained in our research and the findings related to the factor structures are given in Figure 5.12 and Table 5.10. In line with the data obtained, the fit index of the model ($\chi^2/sd=2.361$, NFI=0.900, CFI=0.939, TLI=0.930, IFI=0.940, RMSEA=0.056) show the accuracy of the organizational innovativeness scale. After the exploratory factor analysis was performed, it was not necessary to remove any statement from the scale.

Table 5.10. Organizational Innovativeness Scale Confirmatory Factor Analysis Results

Compliance Measures	Good Compliance	Acceptable Compliance	Calculated Value	Compliance Status
χ^2			617,321	
Df (p)			261 (0,000)	
χ^2/df	≤ 3	$\leq 4-5$	2,365	Good compliance
RMSEA	$0 < RMSEA < 0,05$	$0,05 \leq RMSEA \leq 0,08$	0,056	Acceptable compliance
NFI	$0,95 \leq NFI \leq 1$	$0,90 \leq NFI < 0,95$	0,900	Acceptable compliance
NNFI (TLI)	$0,95 \leq NNFI \leq 1$	$0,90 \leq NNFI < 0,95$	0,930	Acceptable compliance
CFI	$0,97 \leq CFI \leq 1$	$0,90 \leq CFI < 0,97$	0,939	Acceptable compliance
IFI	$0,95 \leq IFI \leq 1$	$0,90 \leq IFI < 0,95$	0,940	Acceptable compliance
GFI	$0,90 \leq GFI \leq 1$	$0,85 \leq GFI < 0,90$	0,900	Good compliance

(Source: Çapık, 2014; Meydan ve Şeşen 2015)

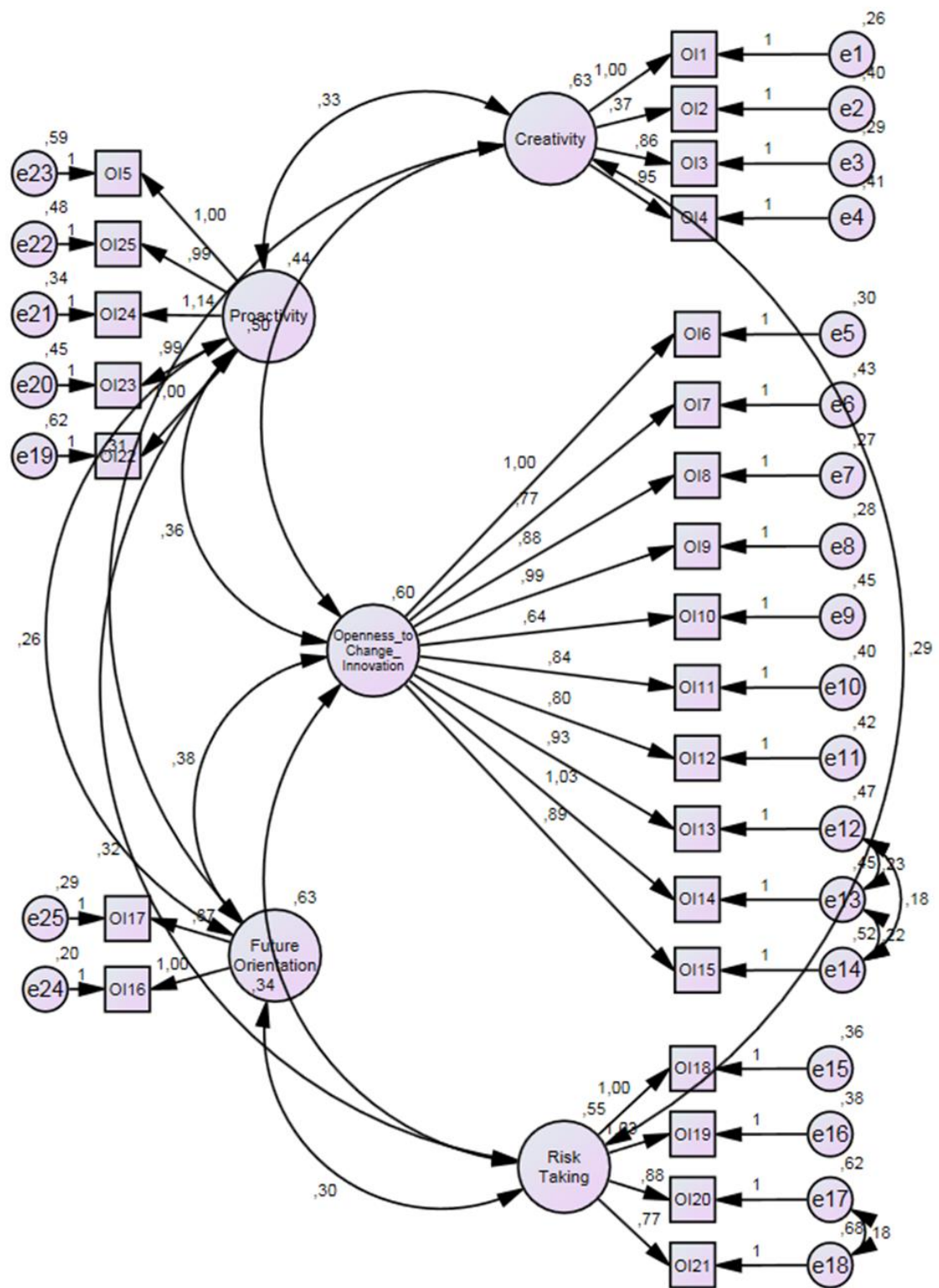


Figure 5.12. Organizational Innovativeness Scale Confirmatory Factor Analysis Model

The summary of the findings section of this study mainly aims to explain an overall assessment, relevance, and importance of the research results. This section examines how the research findings answer the research questions. In this context, the hypotheses specified in the methodology of the department are tested and the critical thinking and analytical skills of the study are exhibited. From all these perspectives; A detailed discussion of the results was conducted to provide a basis for the conclusion of the thesis and to determine the extent to which the presented results fit the research questions and objectives.

Accordingly, socio-demographical characteristics of the participants and general findings of the study, level of participation in competitive strategies and organizational innovativeness scales, the relationship between competitive strategies and organizational innovativeness, the effect of organizational innovativeness on competitive strategies, the effect of organizational innovativeness sub-dimensions on competitive strategies sub-dimensions, and difference analysis results by socio-demographical characteristics of the participants are discussed and explained as below.

5.12. LEVEL OF PARTICIPATION IN COMPETITIVE STRATEGIES AND ORGANIZATIONAL INNOVATIVENESS SCALES

In the study, the level of competitive strategies of the participants was found to be 3.3063 ± 0.4993 at a medium level, and their organizational innovativeness level at a high level of 3.6296 ± 0.5927 . In this case, the organizational innovativeness levels of the participants are higher than the competitive strategies. When the competitive strategies of the participants are evaluated in Table 5.11, the highest value with 4.0069 ± 0.8769 is We are reducing our production costs. received answers to the statement, and the lowest value with 2.2442 ± 1.0939 was We focus only on a certain region. received answers to the question.

Table 5.11. Competitive Strategies Scale Mean and Standard Deviation Values (n=307)

No	Expressions	Min.	Max.	Average	S.D.
CS1	We try to make a difference in our products.	1	5	3,4355	0,9547
CS2	We try to make a difference in our services.	1	5	3,3664	0,9881
CS3	We try to make a difference in our designs.	1	5	3,2465	0,9714
CS4	We are trying to make a difference in our distribution channels.	1	5	3,2650	0,9497

Table 5.11.Competitive Strategies Scale Mean and Standard Deviation Values (Continue)

CS5	We try to make a difference in our delivery speed.	1	5	3,1406	1,0815
CS6	We try to make a difference by branding.	1	5	3,2304	1,0228
CS7	We reduce our purchasing costs.	1	5	3,9470	0,8884
CS8	We reduce our production costs.	1	5	4,0069	0,8769
CS9	We reduce our marketing costs.	1	5	3,9263	0,9750
CS10	We reduce our financing costs.	1	5	3,6014	0,9684
CS11	We reduce our personnel costs.	1	5	3,5968	0,9544
CS12	We reduce our maintenance costs.	1	5	3,9862	0,9824
CS13	We only focus on a particular product.	1	5	2,5438	1,1982
CS14	We only focus on a certain product line.	1	5	2,7512	1,2743
CS15	We only focus on a certain group of customers.	1	5	2,6129	1,2280
CS16	We only focus on a certain area.	1	5	2,2442	1,0939
	Scale Overall	1,75	5	3,3063	0,4993

When the organizational innovativeness of the participants is evaluated in Table 5.12, the highest value with 4.3940 ± 0.6991 is The managers in our company expect us to be skillful problem solvers. received answers to the statement, and the lowest value with 3.0207 ± 1.0226 was Our company likes to take big risks. received answers to the question.

Table 5.12. Organizational Innovativeness Scale Mean and Standard Deviation Values (n=307)

No	Expressions	Min.	Max.	Average	S.D.
OI1	Creativity is encouraged in our company.	1,00	5,00	3,9793	0,9403
OI2	In our company, managers expect us to be skilled problem solvers.	1,00	5,00	4,3940	0,6991
OI3	We are constantly trying to develop and offer new or improved services in our company.	1,00	5,00	4,1244	0,8694
OI4	Our ability to work creatively in our company is respected by leaders.	1,00	5,00	3,9470	0,9893
OI5	Compared to our competitors, our products are revolutionary in the market.	1,00	5,00	3,4747	1,0197
OI6	Our company is open and sensitive to changes.	1,00	5,00	4,0184	0,9513
OI7	Our company is careful to confront the experiences of other organizations.	1,00	5,00	3,5991	0,8838
OI8	Our company is careful to expand its competencies with new ones.	1,00	5,00	3,9332	0,8557
OI9	Our company encourages its employees to develop innovative skills.	1,00	5,00	3,8848	0,9346
OI10	Our company attaches importance to establishing cooperative relations with other organizations.	1,00	5,00	3,8525	0,8387
OI11	Our company is careful about testing new ways of working.	1,00	5,00	3,7373	0,9068
OI12	Our company creates a realistic set of future goals for itself.	1,00	5,00	3,7811	0,8968
OI13	Our company effectively ensures that all managers and employees share the same vision of the future.	1,00	5,00	3,5000	0,9948

Table 5.12. Organizational Innovativeness Scale Mean and Standard Deviation Values (n=307) (Continue)

OI14	Our company conveys a clear sense of future direction to employees.	1,00	5,00	3,4977	1,0424
OI15	All departments and employees in our company have a realistic vision for the future.	1,00	5,00	3,4009	1,0014
OI16	Our future investments in new machinery and equipment in our company are significant compared to our annual turnover.	1,00	5,00	3,5576	0,9132
OI17	Our future investments in new production methods are significant compared to our annual turnover.	1,00	5,00	3,5876	0,8745
OI18	Our company believes that higher returns are worth taking higher risks.	1,00	5,00	3,4378	0,9549
OI19	Our company encourages innovative strategies, knowing well that some will fail.	1,00	5,00	3,2995	0,9838
OI20	Our company likes to take big risks.	1,00	5,00	3,0207	1,0226
OI21	Our company's key executives are willing to take risks to seize and explore growth opportunities "by chance".	1,00	5,00	3,0691	1,0057
OI22	Our company is usually first in the market for new product and service promotions.	1,00	5,00	3,1797	1,0307
OI23	Our new products and services are often perceived by customers as very new.	1,00	5,00	3,4562	0,9413
OI24	Compared to our competitors, our company has been faster in bringing new products or services to market in the last five years.	1,00	5,00	3,6083	0,9580
OI25	The nature of the production process in our company is new compared to our main competitors.	1,00	5,00	3,4908	0,9569
	Scale Overall	1,84	5,00	3,6296	0,5927

5.13. THE RELATIONSHIP BETWEEN COMPETITIVE STRATEGIES AND ORGANIZATIONAL INNOVATIVENESS

Before performing the regression analysis within the scope of the research, correlation analysis was performed to examine the relationship between the variables and the results are given in Table 5.13.

Correlation analysis was conducted to analyze the relationship between competitive strategies and organizational innovativeness in the research, and the results are presented in Table 5.13. According to the results obtained, there is a statistically significant, positive and moderate relationship between competitive strategies and organizational innovativeness ($r=0.422$; $p<0.01$).

Correlation analysis was conducted to determine the relationship between the sub-dimensions of competitive strategies in the research and the general and all sub-dimensions of organizational innovativeness. According to the results of the analysis, there is a statistically significant, positive and low-level relationship between the general competitive strategies and creativity ($r=0.260$; $p<0.01$), one of the organizational

innovativeness sub-dimensions. On the other hand, there is a statistically significant, positive and moderate relationship between proactivity ($r=0.332$; $p<0.01$), openness to change and innovativeness ($r=0.373$; $p<0.01$), future orientation ($r=0.298$; $p<0$) and risk taking ($r=0.335$; $p<0.01$) from the organizational innovativeness sub-dimensions and in general with competitive strategies.

There is a statistically significant, positive and low correlation relationship between cost leadership sub-dimension from competitive strategies and overall organizational innovativeness ($r=0.152$; $p<0.001$) sub-dimensions such as proactivity ($r=0.108$; $p<0.05$), openness to change and innovation ($r=0.125$; $p<0.01$), future orientation ($r=0.132$; $p<0.01$) and risk taking ($r=0.157$; $p<0.01$). On the other hand, no relationship was found between cost leadership and creativity ($r=0.077$; $p>0.05$).

There was a statistically significant, positive and moderate correlation relationship between differentiation sub-dimension and overall organizational innovativeness ($r=0.621$; $p<0.01$) and sub-dimensions of creativity ($r=0.461$; $p<0.01$), proactivity ($r=0.496$; $p<0.01$) openness to change and innovation ($r=0.580$; $p<0.01$), future orientation ($r=0.384$; $p<0.01$) and risk taking ($r=0.371$; $p<0.01$).

There were not statistically significant relationship between focus sub-dimension and overall organizational innovativeness ($r=-0.042$; $p>0.05$) sub-dimensions, proactivity ($r=-0.026$; $p>0.05$), openness to change and innovation ($r=-0.062$; $p>0.05$), future orientation ($r=0.003$; $p>0.05$) and risk taking ($r=0.061$; $p>0.05$). On the other hand, a negative and low-level relationship was found between focus sub-dimension and organizational innovativeness- creativity ($r=-0.096$; $p<0.05$).

According to the results of the correlation analysis conducted to determine the relationship between the sub-dimensions of competitive strategies and organizational innovativeness sub-dimensions in the research, there is a statistically significant, positive and low correlation between cost leadership sub-dimension from the dimensions of competitive strategies and proactivity ($r=0.108$; $p<0.05$), openness to change and innovation ($r=0.125$; $p<0.01$), future orientation ($r=0.132$; $p<0.01$) and risk taking ($r=0.157$; $p<0.01$), which are of the organizational innovativeness sub-dimension. On the other hand, no relationship was found between the cost leadership sub-dimension, which is one of the competitive strategies, and creativity ($r=0.077$; $p>0.05$), which is the organizational innovativeness sub-dimension.

A statistically significant, positive moderate correlation was found between differentiation sub-dimension and creativity ($r=.461$; $p<0.01$), proactivity ($r=0.496$; $p<0.01$), openness to change and innovation ($r=0.580$; $p<0.01$), future orientation ($r=0.384$; $p<0.01$), and risk taking ($r=0.371$; $p<0.01$).

While a statistically significant negative correlation was found between the focus sub-dimension and creativity ($r=-.096$; $p<0.05$), which is one of the organizational innovativeness sub-dimensions, no relationship was found between the other dimensions ($p>0.05$).

Table 5.13. The Relationship Between Competitive Strategies and Organizational Innovativeness

	1	2	3	4	5	6	7	8	9	10
Competitive Strategies (1)	1									
Cost Leadership (2)	,723**	1								
Differentiation (3)	,557**	,097*	1							
Focus (4)	,506**	,142**	-,137**	1						
Organizational Innovativeness (5)	,422**	,152**	,621**	-,042	1					
Creativity (6)	,260**	,077	,461**	-,096*	,698**	1				
Proactiveness (7)	,332**	,108*	,496**	-,026	,790**	,411**	1			
Openness to Change (8)	,373**	,125**	,580**	-,062	,919**	,591**	,613**	1		
Future Orientation (9)	,298**	,132**	,384**	,003	,636**	,371**	,424**	,545**	1	
Risk Taking (10)	,335**	,157**	,371**	,061	,670**	,305**	,515**	,463**	,369**	1

** , Correlation is significant at the 0.01 level (2-tailed). * , Correlation is significant at the 0.05 level (2-tailed).

5.14. THE EFFECT OF ORGANIZATIONAL INNOVATIVENESS ON COMPETITIVE STRATEGIES

After the correlation analysis in the research, regression analysis was performed to determine the effect of organizational innovativeness on competitive strategies and the results are given in Table 5.14. As can be seen, the model was statistically significant ($F=93.392$; $p=0.000$).

In the model, competitive strategies were used as the dependent variable, and organizational innovativeness as the independent variable. According to the model, organizational innovativeness has a positive and significant effect on competitive strategies ($\beta= 0.422$, $t=9,664$, $p<0.001$). In the model, organizational innovativeness explains 17.8% of the total variance. According to these findings, it can be said that the increase in organizational innovativeness will lead to an increase in competitive strategies.

Organizational innovativeness has a positive and significant effect on the cost leadership sub-dimension ($\beta = 0.152$; $t = 3.189$, $p < 0.05$) from the competitive strategies sub-dimensions, and organizational innovativeness explains 2.3% of the total variance. According to these findings, it can be said that the increase in organizational innovation will lead to an increase in cost leadership.

Organizational innovativeness has a positive and significant effect on the differentiation sub-dimension ($\beta = 0.621$; $t = 16.486$, $p < 0.001$) from the competitive strategies sub-dimensions, and organizational innovativeness explains 38.6% of the total variance. According to these findings, it can be said that the increase in organizational innovativeness will lead to an increase in differentiation.

Finally, it was determined that organizational innovativeness had no effect on the focus sub-dimension ($\beta = -0.042$; $t = -0.884$, $p > 0.05$), which is one of the competitive strategies sub-dimensions.

In addition, the effect of organizational innovativeness sub-dimensions on the general and sub-dimensions of competitive strategies was examined; while the creativity dimension had no effect on the cost leadership sub-dimension ($p > 0.05$), it had a significant effect on the overall competitive strategies, differentiation and focus dimensions; while proactivity, openness to change and innovation, future orientation and risk taking dimensions did not have an effect on the focus sub-dimension ($p > 0.05$), it was determined that they had a significant effect on the overall competitive strategies, differentiation and cost leadership dimensions.

Table 5.14. The Effect of Organizational Innovativeness on Competitive Strategies

Dependent Variable	Independent Variable	Standardized Coefficients		Unstandardized Coefficients	t	p	R	R ²	F	P
		B	Std.Err.	β						
Competitive Strategies	Constant	2,017	0,135		14,921	0,000	0,422	0,18	93,392	0,000
	Organizational Innovativeness	0,355	0,037	0,422	9,664	0,000				
	Constant	2,594	0,129		20,030	0,000	0,260	0,07	31,269	0,000
	Creativity	0,174	0,031	0,260	5,592	0,000				
	Constant	2,547	0,106		23,970	0,000	0,332	0,11	53,570	0,000
	Proactivity	0,221	0,030	0,332	7,319	0,000				
	Constant	2,344	0,117		19,972	0,000	0,373	0,12	69,649	0,000
	Openness To Change-Innovation	0,259	0,031	0,373	8,346	0,000				

Table 5.14. The Effect of Organizational Innovativeness on Competitive Strategies (Continue)

	Constant	2,658	0,103		25,922	0,000	0,298	0,09	42,053	0,000
	Future Orientation	0,181	0,028	0,298	6,485	0,000				
	Constant	2,626	0,095		27,691	0,000	0,335	0,11	54,535	0,000
	Risk Taking	0,212	0,029	0,335	7,385	0,000				
Cost Leadership	Constant	2,542	0,235		10,838	0,000	0,152	0,023	10,167	0,002
	Organizational Innovativeness	0,203	0,064	0,152	3,189	0,002				
	Constant	2,944	0,213		13,830	0,000	0,077	0,006	2,585	0,109
	Creativity	0,082	0,051	0,077	1,608	0,109				
	Constant	2,888	0,178		16,200	0,000	0,108	0,012	5,082	0,025
	Proactivity	0,114	0,051	0,108	2,254	0,025				
	Constant	2,766	0,200		13,845	0,000	0,125	0,016	6,873	0,009
	Openness To Change-Innovation	0,138	0,053	0,125	2,622	0,009				
	Constant	2,824	0,170		16,661	0,000	0,132	0,017	7,623	0,006
	Future Orientation	0,128	0,046	0,132	2,761	0,006				
	Constant	2,772	0,158		17,520	0,000	0,157	0,025	10,939	0,001
	Risk Taking	0,159	0,048	0,157	3,307	0,001				
Differentiation	Constant	0,971	0,177		5,501	0,000	0,621	0,386	271,789	0,000
	Organizational Innovativeness	0,791	0,048	0,621	16,486	0,000				
	Constant	1,932	0,180		10,742	0,000	0,461	0,213	116,711	0,000
	Creativity	0,468	0,043	0,461	10,803	0,000				
	Constant	2,130	0,148		14,405	0,000	0,496	0,246	140,712	0,000
	Proactivity	0,498	0,042	0,496	11,862	0,000				
	Constant	1,581	0,156		10,149	0,000	0,580	0,336	218,855	0,000
	Openness to Change-Innovation	0,608	0,041	0,580	14,794	0,000				
	Constant	2,582	0,150		17,216	0,000	0,384	0,147	74,619	0,000
	Future Orientation	0,353	0,041	0,384	8,638	0,000				
	Constant	2,705	0,141		19,143	0,000	0,371	0,138	68,948	0,000
	Risk Taking	0,355	0,043	0,371	8,303	0,000				
Focus	Constant	2,797	0,297		9,410	0,000	0,042	0,002	0,781	0,377
	Organizational Innovativeness	-0,071	0,081	-0,042	-0,884	0,377				
	Constant	3,061	0,266		11,489	0,000	0,096	0,009	3,983	0,047

Table 5.14. The Effect of Organizational Innovativeness on Competitive Strategies (Continue)

	Creativity	-0,128	0,064	-0,096	-1,996	0,047				
	Constant	2,659	0,225		11,832	0,000	0,260	0,001	0,303	0,582
	Proactivity	-0,035	0,064	-0,260	-0,551	0,582				
	Constant	2,856	0,252		11,335	0,000	0,062	0,004	1,665	0,199
	Openness to Change-Innovation	-0,086	0,067	-0,062	-1,287	0,199				
	Constant	2,524	0,214		11,770	0,000	0,003	0,000	0,005	0,945
	Future Orientation	0,004	0,058	0,003	0,069	0,945				
	Constant	2,289	0,201		11,415	0,000	0,061	0,004	1,637	0,201
	Risk Taking	0,078	0,061	0,061	1,280	0,201				

5.14.1 The Effect of Organizational Innovativeness Sub-Dimensions on the General and Sub-Dimensions of Competitive Strategies

In the research, regression analysis was performed to determine the effect of the sub-dimensions of organizational innovativeness on competitive strategies and the results are given in Table 5.15. In the model, competitive strategies were used as the dependent variable and organizational innovativeness sub-dimensions were used as independent variables. According to the model, creativity, one of the sub-dimensions of organizational innovativeness, has a positive and significant effect on competitive strategies ($\beta= 0.260$; $t=5.592$, $p<0.001$), and creativity explains 7% of the total variance. According to these findings, it can be said that the increase in creativity will lead to an increase in competitive strategies.

Proactivity has a positive and significant effect on competitive strategies ($\beta= 0.332$; $t=7.319$, $p<0.001$), and proactivity explains 11% of the total variance. According to these findings, it can be said that the increase in proactivity will lead to an increase in competitive strategies.

Openness to change and innovation has a positive and significant effect on competitive strategies ($\beta= 0.373$; $t=8.346$, $p<0.001$), and openness to change and innovation explains 12% of the total variance. According to these findings, it can be said that the increase in change and innovation will lead to an increase in competitive strategies.

Future orientation has a positive and significant effect on competitive strategies ($\beta= 0.298$; $t=6.485$, $p<0.001$), and future orientation explains 11% of the total variance.

According to these findings, it can be said that the increase in future orientation will lead to an increase in competitive strategies.

Risk taking has a positive and significant effect on competitive strategies ($\beta = 0.335$; $t = 7.385$, $p < 0.001$) and risk taking explains 11% of the total variance. According to these findings, it can be said that the increase in risk taking will lead to an increase in competitive strategies.

Table 5.15. The Effects of Creativity, Proactivity, Openness to Change, Innovation, Future Orientation and Risk Taking on Competitive Strategies

Dependent Variable	Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t	p	R	R ²	F	P
		B	Std. Error	β						
Competitive Strategies	Constant	2,594	0,129		20,030	0,000	0,260	0,07	31,269	0,000
	Creativity	0,174	0,031	0,260	5,592	0,000				
	Constant	2,547	0,106		23,970	0,000	0,332	0,11	53,570	0,000
	Proactivity	0,221	0,030	0,332	7,319	0,000				
	Constant	2,344	0,117		19,972	0,000	0,373	0,12	69,649	0,000
	Openness To Change-Innovation	0,259	0,031	0,373	8,346	0,000				
	Constant	2,658	0,103		25,922	0,000	0,298	0,09	42,053	0,000
	Future Orientation	0,181	0,028	0,298	6,485	0,000				
	Constant	2,626	0,095		27,691	0,000	0,335	0,11	54,535	0,000
	Risk Taking	0,212	0,029	0,335	7,385	0,000				

5.14.2 The Effect of Organizational Innovativeness Sub-Dimensions on Competitive Strategies Sub-Dimensions

Regression analysis was conducted to analyze the effects of organizational innovativeness sub-dimensions such as creativity, proactivity, openness to change and innovation, future orientation and risk taking on the sub-dimensions of competitive strategies such as cost leadership, differentiation and focus, and the results are presented in Table 5.16.

Regression analysis was conducted to measure the effect of the sub-dimensions of organizational innovativeness are creativity ($F = 2.585$; $p = 0.109$), proactivity ($F = 5.082$; $p = 0.025$), openness to change and innovation ($F = 6.873$; $p = 0.009$), future orientation

($F=7.623$; $p=0.006$) and risk-taking ($F=10.939$; $p=0.001$), the sub-dimensions of competitive strategies on the cost leadership, and the results of the analysis are shown in Table 6.6. Cost leadership was used as dependent variable, creativity, proactivity, openness to change and innovation, future orientation and risk taking were used as independent variables. According to the model, the independent variables of proactivity ($\beta = 0.108$), openness to change and innovation ($\beta = 0.125$), future orientation ($\beta = 0.132$) and risk taking ($\beta = 0.157$) were found to have a positive and significant effect on the dimension of cost leadership ($p<0.05$).

In the model, 1.2% of proactivity, 1.6% of openness to change and innovation, 1.7% of future orientation and 2.5% of risk taking explain of cost leadership. According to the findings, it can be said that proactivity, openness to change and innovation, future orientation and risk taking, which are the sub-dimensions of organizational innovativeness, will also increase the cost leadership, which is the sub-dimension of competitive strategies.

Table 5.16. The Effects of Creativity, Proactivity, Openness to Change and Innovation, Future Orientation and Risk Taking on Cost Leadership Dimension

Dependent Variable	Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t	p	R	R ²	F	P
		B	Std.Err.	β						
Cost Leadership	Constant	2,944	0,213		13,830	0,000	0,077	0,006	2,585	0,109
	Creativity	0,082	0,051	0,077	1,608	0,109				
	Constant	2,888	0,178		16,200	0,000	0,108	0,012	5,082	0,025
	Proactivity	0,114	0,051	0,108	2,254	0,025				
	Constant	2,766	0,200		13,845	0,000	0,125	0,016	6,873	0,009
	Openness to Change-Innovation	0,138	0,053	0,125	2,622	0,009				
	Constant	2,824	0,170		16,661	0,000	0,132	0,017	7,623	0,006
	Future Orientation	0,128	0,046	0,132	2,761	0,006				
	Constant	2,772	0,158		17,520	0,000	0,157	0,025	10,939	0,001
	Risk Taking	0,159	0,048	0,157	3,307	0,001				

Regression analysis was conducted to measure the effect of the sub-dimensions of organizational innovativeness are creativity ($F=116,711$; $p=0.000$), proactivity ($F=140,712$; $p=0.000$), openness to change and innovation ($F=218,855$; $p=0.000$), future orientation ($F=74.619$; $p=0.000$) and risk-taking ($F=68,948$; $p=0.000$) dimensions, the sub-dimension of the competitive strategies on the differentiation and the results are

shown in Table 5.17. Differentiation was used as the dependent variable, creativity, proactivity, openness to change and innovation, future orientation and risk taking were used as independent variables. According to the model, the independent variables of creativity ($\beta = 0.461$), proactivity ($\beta = 0.496$), openness to change and innovation ($\beta = 0.580$), future orientation ($\beta = 0.384$), and risk taking ($\beta = 0.371$) were found to have a positively significant effect on the differentiation dimension ($p < 0.01$).

In the model, 21.3% of creativity, 24.6% of proactivity, 33.6% of openness to change and innovation, 14.7% of future orientation and 13.8% of risk taking explain of differentiation. It can be said that, increase in creativity, proactivity in organizational innovation, openness to change and innovation, future orientation, and risk-taking which are the sub-dimensions of organizational innovativeness will lead to an increase in differentiation.

Table 5.17. The Effect of Creativity, Proactivity, Openness to Change and Innovation, Future Orientation and Risk Taking on Differentiation Dimension

Dependent Variable	Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t	p	R	R ²	F	P
		B	Std.Err.	β						
Differentiation	Constant	1,932	0,180		10,742	0,000	0,461	0,213	116,711	0,000
	Creativity	0,468	0,043	0,461	10,803	0,000				
	Constant	2,130	0,148		14,405	0,000	0,496	0,246	140,712	0,000
	Proactivity	0,498	0,042	0,496	11,862	0,000				
	Constant	1,581	0,156		10,149	0,000	0,580	0,336	218,855	0,000
	Openness to Change-Innovation	0,608	0,041	0,580	14,794	0,000				
	Constant	2,582	0,150		17,216	0,000	0,384	0,147	74,619	0,000
	Future Orientation	0,353	0,041	0,384	8,638	0,000				
	Constant	2,705	0,141		19,143	0,000	0,371	0,138	68,948	0,000
	Risk Taking	0,355	0,043	0,371	8,303	0,000				

Regression analysis was performed to measure the effect of the sub-dimensions of organizational innovativeness are creativity ($F=3.983$; $p=0.047$), proactivity ($F=0.303$; $p=0.582$), openness to change and innovation ($F=1.665$; $p=0.199$), future orientation ($F=0.005$; $p=0.945$), and risk taking ($F=1.637$; $p=0.201$) of the sub-dimensions of competitive strategies on the focusing, and the results are shown in Table 5.18. Focus was used as dependent variable, creativity, proactivity, openness to change and innovation, future orientation and risk taking were used as independent variables. According to the

model, creativity ($\beta = -0.096$) has a significant negative effect on the focus dimension ($p < 0.05$).

On the other hand, proactivity ($\beta = -0.260$), openness to change and innovation ($\beta = -0.062$), future orientation ($\beta = 0.003$) and risk taking ($\beta = 0.061$) did not have any effect on focus.

In the model, creativity explains 1% of the focus. It can be said that the increase in creativity, which is the sub-dimension of organizational innovativeness, will cause a decrease in focus.

Table 5.18. . The Effect of Creativity, Proactivity, Openness to Change and Innovation, Future Orientation and Risk Taking on Focus Dimension

Dependent Variable	Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t	p	R	R ²	F	P
		B	Std.Err.	β						
Focus	Constant	3,061	0,266		11,489	0,000	0,096	0,009	3,983	0,047
	Creativity	-0,128	0,064	-0,096	-1,996	0,047				
	Constant	2,659	0,225		11,832	0,000	0,260	0,001	0,303	0,582
	Proactivity	-0,035	0,064	-0,260	-0,551	0,582				
	Constant	2,856	0,252		11,335	0,000	0,062	0,004	1,665	0,199
	Openness to Change-Innovation	-0,086	0,067	-0,062	-1,287	0,199				
	Constant	2,524	0,214		11,770	0,000	0,003	0,000	0,005	0,945
	Future Orientation	0,004	0,058	0,003	0,069	0,945				
	Constant	2,289	0,201		11,415	0,000	0,061	0,004	1,637	0,201
	Risk Taking	0,078	0,061	0,061	1,280	0,201				

5.15. SOCIO-DEMOGRAPHICAL CHARACTERISTICS OF THE PARTICIPANTS AND GENERAL FINDINGS OF THE STUDY

The distribution of the participants according to their socio-demographic characteristics is given in Table 5.19. When the mentioned data are examined, 130 (30%) of the participants are female and 304 (70%) are male. Examining their marital status, 393 (90.6%) were married and 41 (9.4%) were single. When their educational status is examined, 34 (7.8%) have high school and pre-school education, 40 (9.2%) have an associate degree education, 214 (49.3%) have undergraduate education, 113' It was determined that 26% of them (26%) had a master's degree, and finally 33 (7.6%) had a

doctorate or higher education. When the age status of the participants was examined, 38 (8.8%) were aged 25 and under, 190 (43.8%) were between the ages of 26-35, 120 (27.6%) were between the ages of 36-45 and it was determined that 86 (19.8%) were in the age range of 46 years and above. When the sectors of the participants are examined, 399 (91.9%) work in the private sector, while 35 (8.1%) work in public and local government institutions. When the service fields of the companies they work for are examined, 107 (24.7%) are in the field of medicine and biotechnology, 36 (8.3%) are in the field of cosmetics, 108 (24.9%) are in the field of medical industry, and 91 (%) 21) operate in the field of clean environment technologies and 92 (21.2%) operate in other service areas.

Table 5.19. Findings Regarding the Socio-Demographical Characteristics of the Participants

Gender	Frequency	Percent
Female	130	30,0
Male	304	70,0
Marital Status		
Married	393	90,6
Single	41	9,4
Educational Status		
High school and before	34	7,8
Associate Degree	40	9,2
Licence	214	49,3
Master	113	26,0
Doctorate (PhD) and above	33	7,6
Age		
25 Age and earlier	38	8,8
Between 26-35 age	190	43,8
Between 36-45 age	120	27,6
46 Age and above	86	19,8
Sector		
Private	399	91,9
Public, Local Government	35	8,1
Firm		
Pharmaceuticals and Biotechnology	107	24,7
Cosmetics	36	8,3
Medical Industry	108	24,9

Table 5.19. Findings Regarding the Socio-Demographical Characteristics of the Participants (Continue)

Clean Environment Technologies	91	21,0
Other	92	21,2
Company Activity Period		
5 Years and under	108	24,9
Between 6-12 Years	116	26,7
Between 13-21 Years	67	15,4
22 Years and above	143	32,9
Working Period of The Employee		
5 Years and under	226	52,1
Between 6-10 Years	97	22,4
Between 11-16 Years	48	11,1
17 Years and above	63	14,5
Position of The Employee		
No management role	202	46,5
Lower management	53	12,2
Mid-level management	90	20,7
Senior management	89	20,5
Total	434	100,0

5.16. DIFFERENCE ANALYSIS RESULTS BY SOCIO-DEMOGRAPHICAL CHARACTERISTICS OF THE PARTICIPANTS

Whether there is a difference between organizational innovativeness and competitive strategies according to the gender of the participants was analyzed with the t-test in independent samples, and the results are presented in Table 5.20. As can be seen in the results obtained, it has been determined that there is no statistically significant difference in the organizational innovativeness levels of the participants whether they are male or female ($p>0.05$).

On the other hand, a statistically significant difference was found in competitive strategies in gender difference ($p<0.05$). It has been determined that the average of men (3.415 ± 0.4773) in competitive strategies is higher than the average of women (3.2240 ± 0.5405).

In addition, when the sub-dimensions of the scales were examined, a statistically significant difference was found in the cost leadership sub-dimension of the competitive

strategies scale ($p < 0.05$). According to this result, it was determined that the mean of men (3.3405 ± 0.7275) was higher than that of women (3.1410 ± 0.9221).

Table 5.20. Difference Analysis Results by Gender

Gender		N	Average	Std. Dev.	t	p
Organizational Innovativeness	Female	130	3,6514	0,6131	,501	,617
	Male	304	3,6203	0,5845		
Creativity	Female	130	4,0173	0,6899	-1,297	,195
	Male	304	4,1184	0,7656		
Proactivity	Female	130	3,4508	0,7447	,160	,873
	Male	304	3,4382	0,7554		
Openness to Change and Innovation	Female	130	3,7754	0,6902	1,039	,299
	Male	304	3,6970	0,7318		
Future Orientation	Female	130	3,6423	0,7856	1,159	,247
	Male	304	3,5428	0,8334		
Risk Taking	Female	130	3,2308	0,7940	,414	,679
	Male	304	3,1965	0,7868		
Competitive Strategies	Female	130	3,2240	0,5405	-2,255	,025
	Male	304	3,3415	0,4773		
Cost Leadership	Female	130	3,1410	0,9221	-2,191	,030
	Male	304	3,3405	0,7275		
Differentiation	Female	130	3,8500	0,7703	,107	,915
	Male	304	3,8416	0,7494		
Focus	Female	130	2,4096	1,0101	-1,759	,079
	Male	304	2,5929	0,9874		

Whether there is a difference between organizational innovativeness and competitive strategies according to the marital status of the participants was analyzed with the t-test in independent samples, and the results are presented in Table 5.21. As seen in the results obtained, it was determined that there was no statistically significant difference in the levels of organizational innovativeness and competitive strategies whether the participants were married or single ($p > 0.05$).

Table 5.21. Difference Analysis Results by Marital Status

Marital Status		N	Average	Std. Dev.	t	p
Organizational Innovativeness	Married	393	3,6380	,58450	,912	,362
	Single	41	3,5493	,66855		

Table 5.21. Difference Analysis Results by Marital Status (Continue)

Creativity	Married	393	4,0922	,74376	,355	,722
	Single	41	4,0488	,75874		
Proactivity	Married	393	3,4499	,75197	,681	,496
	Single	41	3,3659	,75087		
Openness to Change and Innovation	Married	393	3,7295	,70987	,807	,420
	Single	41	3,6341	,81228		
Future Orientation	Married	393	3,5674	,80885	-,405	,686
	Single	41	3,6220	,92723		
Risk Taking	Married	393	3,2252	,78339	1,507	,132
	Single	41	3,0305	,82195		
Competitive Strategies	Married	393	3,32093	,496619	1,894	,059
	Single	41	3,16616	,509789		
Cost Leadership	Married	393	3,3041	,79106	1,900	,058
	Single	41	3,0569	,80761		
Differentiation	Married	393	3,8579	,74922	1,183	,237
	Single	41	3,7114	,80452		
Focus	Married	393	2,5407	,99309	,174	,862
	Single	41	2,5122	1,04276		

Whether there is a difference in organizational innovativeness and competitive strategies according to the educational status of the participants was analyzed using One Way Anova, and the results are given in Table 5.22. As can be seen, no difference was found in terms of organizational innovativeness according to the educational status of the participants ($p>0.05$).

However, it was determined that there was a statistical difference in competitive strategies according to the educational status of the participants ($p<0.05$). Post Hoc test was performed to determine which groups caused this difference. According to the results of the Post Hoc test, the difference was found to be at doctorate or higher (3.1212 ± 0.5161) education level and high school and pre-school (3.4504 ± 0.4230) education level, associate degree (3.4172 ± 0.6103) education level and undergraduate education level (3.3058 ± 0.4689) participants. In other words, according to the test result, it was determined that the participants with a doctorate and higher education level had a lower average.

In addition, when the sub-dimensions of the scales were examined, there was no difference in all dimensions of the organizational innovativeness scale except risk-taking

($p>0.05$), while a statistically significant difference was found in the risk-taking sub-dimension ($p<0.05$). According to the results of the Post Hoc test performed to determine which group caused this difference, the difference was found to be doctorate or higher (2.7727 ± 0.861) and high school and pre-high school (3.3162 ± 0.8102), undergraduate ($3,2301\pm0,7267$) education level and graduate (3.2810 ± 0.7821) education level. According to the test result, it was found that the group with a doctorate or higher education level had a lower average.

While there was no difference in all dimensions of the competitive strategies scale except the cost leadership dimension ($p>0.05$), a statistically significant difference was found in the cost leadership dimension ($p<0.05$). According to the results of the Post Hoc test, which was conducted to determine which groups caused this difference, the difference was found to be doctorate or higher (2.8636 ± 0.6953) and high school and pre (3.5588 ± 0.6913) education level, associate degree (3.4667 ± 0.9169) and undergraduate education level (3.2983 ± 0.7792) participants. In other words, according to the test results, it was determined that the participants with a doctorate and higher education level had a lower average.

Table 5.22. Difference Analysis Results by Educational Status

	Education Status	N	Ave.	Std.Dev.	F	p	Post Hoc
Organizational Innovativeness	High S. and Earlier	34	3,5447	,65999	2,055	,086	-
	Associate Degree	40	3,5830	,77742			
	Licence	214	3,6738	,52286			
	Master	113	3,6598	,57523			
	PhD and Above	33	3,3830	,70711			
Creativity	High S. and Earlier	34	3,9044	,82576	1,518	,196	-
	Associate Degree	40	4,0313	,88829			
	Licence	214	4,1285	,71893			
	Master	113	4,1460	,66457			
	PhD and Above	33	3,8864	,86171			
Proactivity	High S. and Earlier	34	3,5471	,79286	1,707	,147	-
	Associate Degree	40	3,3800	,89763			
	Licence	214	3,4850	,68660			
	Master	113	3,4372	,78447			
	PhD and Above	33	3,1455	,77342			

Table 5.22. Difference Analysis Results by Educational Status (Continue)

Openness to Change And Innovation	High S. and Earlier	34	3,4412	,84786	2,273	,061	-
	Associate Degree	40	3,7100	,89780			
	Licence	214	3,7907	,64576			
	Master	113	3,7248	,69751			
	PhD and Above	33	3,5515	,81284			
Future Orientation	High S. and Earlier	34	3,7941	,72944	2,024	,090	-
	Associate Degree	40	3,4500	,89729			
	Licence	214	3,5397	,81336			
	Master	113	3,6770	,76158			
	PhD and Above	33	3,3485	,98015			
Risk Taking	High S. and Earlier	34	3,3162	,81023	3,099	,016	5<1,3,4
	Associate Degree	40	3,1375	,94894			
	Licence	214	3,2301	,72668			
	Master	113	3,2810	,78215			
	PhD and Above	33	2,7727	,86006			
Competitive Strategies	High S. and Earlier	34	3,45037	,422995	2,453	,045	5<1,2,3
	Associate Degree	40	3,41719	,610306			
	Licence	214	3,30578	,468618			
	Master	113	3,27876	,515999			
	PhD and Above	33	3,12121	,516084			
Cost Leadership	High S. and Earlier	34	3,5588	,69131	4,169	,003	5<1,2,3
	Associate Degree	40	3,4667	,91692			
	Licence	214	3,2983	,77919			
	Master	113	3,2198	,79097			
	PhD and Above	33	2,8636	,69529			
Differentiation	High S. and Earlier	34	3,8284	,53258	,512	,727	-
	Associate Degree	40	3,9083	,92292			
	Licence	214	3,8785	,74099			
	Master	113	3,7965	,77111			
	PhD and Above	33	3,7222	,77914			
Focus	High S. and Earlier	34	2,7206	,91030	,793	,530	-
	Associate Degree	40	2,6063	1,13777			
	Licence	214	2,4579	,96930			
	Master	113	2,5907	,99948			
	PhD and Above	33	2,6061	1,07716			
1=High School and Earlier; 2= Associate Degree; 3=Licence; 4=Master; 5=PhD and Above							

Whether there is a difference between organizational innovativeness and competitive strategies according to the sectoral status of the participants was analyzed by independent sample t-test and the results are presented in Table 5.23. As seen in the results obtained, it was determined that the fact that the participants were working in the private sector or in the public-local government did not make a statistically significant difference in the levels of competitive strategies ($p>0.05$). A statistically significant difference was found in organizational innovativeness levels ($p<0.05$). It has been determined that the average of private sector employees (3.6511 ± 0.5659) is higher than the average of public-local government employees (3.3840 ± 0.8102). In addition, when the sub-dimensions of the scales were examined, a statistically significant difference was found in the creativity sub-dimension of the organizational innovativeness scale ($p<0.05$).

According to this result, it was determined that the average of private sector employees (4.1247 ± 0.7205) was higher than the average of public-local government employees (3.6714 ± 0.8865). For the risk-taking sub-dimension, the average of private sector employees (3.2393 ± 0.7709) was found to be higher than the average of public-local government employees (2.8357 ± 0.8951). It has been determined that the average of the private sector employees (3.8793 ± 0.7282) for the differentiation sub-dimension, one of the competitive strategies sub-dimensions, is higher than the average of the public-local government employees (3.4429 ± 0.9323).

Table 5.23. Difference Analysis Results by Sectoral Status

Sector		N	Average	Std. Dev.	t	p
Organizational Innovativeness	Private Sector	399	3,6511	0,5659	2,573	,010
	Public-Local Governm.	35	3,3840	0,8102		
Creativity	Private Sector	399	4,1247	0,7205	3,498	,001
	Public-Local Governm.	35	3,6714	0,8865		
Proactivity	Private Sector	399	3,4541	0,7298	1,142	,254
	Public-Local Governm.	35	3,3029	0,9669		
Openness to Change and Innovation	Private Sector	399	3,7368	0,7009	1,599	,110
	Public-Local Governm.	35	3,5343	0,8980		
Future Orientation	Private Sector	399	3,5915	0,8050	1,625	,105
	Public-Local Governm.	35	3,3571	0,9593		
Risk Taking	Private Sector	399	3,2393	0,7709	2,585	,014
	Public-Local Governm.	35	2,8357	0,8951		
Competitive Strategies	Private Sector	399	3,3148	0,4772	1,204	,229

Table 5.23. Difference Analysis Results by Sectoral Status (Continue)

	Public-Local Governm.	35	3,2089	0,7068		
Cost Leadership	Private Sector	399	3,2786	0,7886	-,170	,866
	Public-Local Governm.	35	3,3048	0,8768		
Differentiation	Private Sector	399	3,8793	0,7282	3,317	,001
	Public-Local Governm.	35	3,4429	0,9323		
Focus	Private Sector	399	2,5226	0,9790	-0,932	,357
	Public-Local Governm.	35	2,7143	1,1822		

Whether there is a difference in organizational innovativeness and competitive strategies according to the age of the participants was analyzed by using one-way analysis of variance (One Way Anova), and the results are given in Table 5.24. As can be seen, while no difference was found in terms of competitive strategies according to the age of the participants ($p>0.05$), it was determined that there was a statistical difference according to organizational innovativeness ($p<0.05$). According to the result of the Post Hoc test performed to determine which groups this difference was due to, the difference was caused by the participants aged 25 and below (3.8779 ± 0.5269) and the participants aged 46 years and over (3.4504 ± 0.4230) and participants aged 25 and under had a higher mean.

In addition, when the sub-dimensions of the scales were examined, there was no difference in all dimensions of the organizational innovativeness scale except creativity and risk-taking ($p>0.05$), while a statistically significant difference was found in the creativity and risk-taking sub-dimensions ($p<0.05$). According to the results of the Post Hoc test performed to determine which group this difference originates from, the difference between the age group of 25 years and under (4.3882 ± 0.5381) and the age group of 46 years and above (3.9448 ± 0.7430) for creativity. It has been determined that participants aged 25 and under have a higher mean. In addition, the difference in risk-taking was between the age group of 25 and below (3.5724 ± 0.6900) and the age group of 36-45 (3.1458 ± 0.7193) and the age of 46 and above (3.0756 ± 0.8737). It has been determined that the participants in the age group of 25 and younger have a higher average. No difference was found in the general and all dimensions of the competitive strategies scale ($p>0.05$).

Table 5.24. Difference Analysis Results by Age

	Age	N	Ave.	Std.Dev.	F	p	Post Hoc
Organizational Innovativeness	25 Age and Under	38	3,8779	0,5269	3,2980	0,020	1>4
	26-35 Between	190	3,6314	0,5700			
	36-45 Between	120	3,6283	0,5833			
	46 Age and Above	86	3,5177	0,6553			
Creativity	25 Age and Under	38	4,3882	0,5381	3,2100	0,023	1>4
	26-35 Between	190	4,1026	0,7689			
	36-45 Between	120	4,0729	0,7408			
	46 Age and Above	86	3,9448	0,7430			
Proactivity	25 Age and Under	38	3,6632	0,6692	2,5153	0,058	-
	26-35 Between	190	3,4842	0,7192			
	36-45 Between	120	3,4117	0,7394			
	46 Age and Above	86	3,2930	0,8461			
Openness to Change And Innovation	25 Age and Under	38	3,9526	0,6595	2,1685	0,091	-
	26-35 Between	190	3,7042	0,6923			
	36-45 Between	120	3,7542	0,7361			
	46 Age and Above	86	3,6070	0,7651			
Future Orientation	25 Age and Under	38	3,6316	0,8905	1,1400	0,333	-
	26-35 Between	190	3,4921	0,8173			
	36-45 Between	120	3,6167	0,8345			
	46 Age and Above	86	3,6628	0,7687			
Risk Taking	25 Age and Under	38	3,5724	0,6900	3,8979	0,009	1>3,4
	26-35 Between	190	3,2316	0,7895			
	36-45 Between	120	3,1458	0,7193			
	46 Age and Above	86	3,0756	0,8737			
Competitive Strategies	25 Age and Under	38	3,2796	0,5814	0,4890	0,690	-
	26-35 Between	190	3,2806	0,4582			
	36-45 Between	120	3,3224	0,4416			
	46 Age and Above	86	3,3525	0,6154			
Cost Leadership	25 Age and Under	38	3,2763	0,8349	0,9971	0,394	-
	26-35 Between	190	3,2140	0,7769			
	36-45 Between	120	3,3722	0,7326			
	46 Age and Above	86	3,3023	0,8946			
Differentiation	25 Age and Under	38	3,7500	0,7079	0,8183	0,484	-
	26-35 Between	190	3,9061	0,7283			
	36-45 Between	120	3,8083	0,7958			

Table 5.24. Difference Analysis Results by Age (Continue)

	46 Between	86	3,7984	0,7759			
Focus	25 Age and Under	38	2,5789	1,0876	2,0432	0,107	-
	26-35 Between	190	2,4421	0,9799			
	36-45 Between	120	2,5188	0,9708			
	46 Age and Above	86	2,7587	1,0098			
1=25 Age and under, 2=Between 26-35 Age, 3= Between 36-45 Age, 4=46 Age and Above							

Whether the participants differ in organizational innovativeness and competitive strategies according to the company's service area (ie sector) was analyzed using one-way analysis of variance (One Way Anova), and the results are given in Table 5.25. As can be seen, no difference was found in terms of organizational innovativeness and competitive strategies according to the company's service area status of the participants ($p>0.05$).

When the sub-dimensions of the scales were examined, no difference was found in all dimensions of the organizational innovativeness scale except the creativity dimension ($p>0.05$), while a statistically significant difference was found in the creativity dimension ($p<0.05$). Post Hoc test was performed to determine which group caused this difference. According to the Post Hoc test results, the difference was caused by the participants working in the pharmaceutical and biotechnology (4.2056 ± 0.48053) service area and the other (3.8859 ± 0.77425) service area, and the participants working in the pharmaceutical and biotechnology service area had a higher average.

While there was no difference in all dimensions of the competitive strategies scale except the cost leadership dimension ($p>0.05$), a difference was found in the cost leadership dimension ($p<0.05$). Post Hoc test was performed to determine which group caused this difference. According to the Post Hoc test results, the difference is caused by the participants working in the pharmaceutical and biotechnology (3.1573 ± 0.7930) service area and the clean environment technologies (3.4304 ± 0.8682) service area, and the participants working in the pharmaceutical and biotechnology service area have a lower average.

Table 5.25. Difference Analysis Results by Company Service Area

	Company Service Area	N	Ave.	Std.Dev.	F	p	Post Hoc
Organizational Innovativeness	Pharmaceuticals and Biotechnology	107	3,6815	,44799	1,004	,405	-
	Cosmetic	36	3,5844	,55978			
	Medical Industry	108	3,6922	,61521			

Table 5.25. Difference Analysis Results by Company Service Area (Continue)

	Clean Environment Technologies	91	3,5701	,65131			
	Other	92	3,5722	,66107			
Creativity	Pharmaceuticals and Biotechnology	107	4,2056	,48053	2,536	,040	1>5
	Cosmetic	36	4,1319	,64222			
	Medical Industry	108	4,1343	,91994			
	Clean Environment Technologies	91	4,0824	,74820			
	Other	92	3,8859	,77425			
Proactivity	Pharmaceuticals and Biotechnology	107	3,4467	,66875	1,559	,184	-
	Cosmetic	36	3,2222	,70066			
	Medical Industry	108	3,5500	,75980			
	Clean Environment Technologies	91	3,3714	,75811			
	Other	92	3,4652	,83131			
Openness to Change and Innovation	Pharmaceuticals and Biotechnology	107	3,7925	,56380	1,635	,164	-
	Cosmetic	36	3,6917	,73227			
	Medical Industry	108	3,8204	,73672			
	Clean Environment Technologies	91	3,6099	,82017			
	Other	92	3,6402	,73992			
Future Orientation	Pharmaceuticals and Biotechnology	107	3,6589	,67152	,797	,528	-
	Cosmetic	36	3,6528	,58333			
	Medical Industry	108	3,5000	,87274			
	Clean Environment Technologies	91	3,5989	,89821			
	Other	92	3,5000	,90784			
Risk Taking	Pharmaceuticals and Biotechnology	107	3,1846	,72468	,131	,971	-
	Cosmetic	36	3,1875	,68237			
	Medical Industry	108	3,2037	,80821			
	Clean Environment Technologies	91	3,1923	,87645			
	Other	92	3,2582	,79615			
Competitive Strategies	Pharmaceuticals and Biotechnology	107	3,29206	,480131	1,386	,238	-
	Cosmetic	36	3,12847	,356679			
	Medical Industry	108	3,33565	,515996			
	Clean Environment Technologies	91	3,33104	,514165			
	Diğer	92	3,33356	,528488			
Cost Leadership	Pharmaceuticals and Biotechnology	107	3,1573	,79300	3,175	,014	2<4
	Cosmetic	36	2,9676	,83364			
	Medical Industry	108	3,3164	,75811			
	Clean Environment Technologies	91	3,4304	,86818			

Table 5.25. Difference Analysis Results by Company Service Area (Continue)

	Other	92	3,3569	,70693			
Differentiation	Pharmaceuticals and Biotechnology	107	3,9268	,68381	1,632	,165	-
	Cosmetic	36	4,0185	,76509			
	Medical Industry	108	3,8704	,77785			
	Clean Environment Technologies	91	3,7326	,77015			
	Other	92	3,7591	,77639			
Focus	Pharmaceuticals and Biotechnology	107	2,5421	,96366	2,741	,028	-
	Cosmetic	36	2,0347	,80212			
	Medical Industry	108	2,5625	,98773			
	Clean Environment Technologies	91	2,5797	1,04075			
	Other	92	2,6603	1,03016			
1= Pharmaceuticals and Biotechnology; 2= Cosmetic; 3= Medical Industry; 4= Clean Environment Technologies; 5= Other							

Whether the participants differ in organizational innovativeness and competitive strategies according to the duration of the firm was analyzed using One Way Anova, and the results are given in Table 5.26. As it can be seen, no difference was detected in terms of general competitive strategies and all sub-dimensions of the participants according to the duration of the firm's activity ($p>0.05$); Differences were determined in terms of organizational innovativeness. Post Hoc test was performed to determine which group caused this difference. According to the results of the Post Hoc test, it was determined that the difference was caused by the employees of the company operating for less than 5 years (3.7474 ± 0.5462) and the employees of the company operating for 22 years or more (3.5085 ± 0.5840). Accordingly, it has been found that the working group with 5 years or less operating period has a higher average.

When the sub-dimensions of the scales were examined, there was no difference in the dimensions of creativity, proactivity and future orientation of the organizational innovativeness scale ($p>0.05$), while a difference was found in the dimensions of openness to change and innovation and taking risks ($p<0.05$). Post Hoc test was conducted to determine which group caused this difference in terms of openness to change and innovation. According to the results of the Post Hoc test, it was determined that the difference was caused by the employees of the company operating for less than 5 years (3.8759 ± 0.6077) and the employees of the company operating for 22 years or more (3.5881 ± 0.7044). Accordingly, it was found that the group with less than 5 years of activity had a higher average. Post Hoc test was used again to determine which group

caused the difference in risk taking dimension. According to the test results, it was determined that the difference was caused by the employees of the company operating for 13-21 years (3.4067 ± 0.8255) and the employees of the company operating for 22 years or more (3.0402 ± 0.7614). According to this, it was determined that the group with 13-21 years of activity period had a higher average.

Table 5.26. Difference Analysis Results by Company Activity Duration

	Company Activity Duration	N	Ave.	Std.Dev.	F	p	Post Hoc
Organizational Innovativeness	5 Years and below	108	3,7474	0,5462	3,664	,012	1>4
	6-12 Years between	116	3,6386	0,5194			
	13-21 Between	67	3,6824	0,7478			
	22 Years and Over	143	3,5085	0,5840			
Creativity	5 Years and below	108	4,2407	0,5574	2,610	,051	-
	6-12 Years between	116	4,1099	0,7563			
	13-21 Between	67	3,9963	0,9687			
	22 Years and Over	143	3,9983	0,7252			
Proactivity	5 Years and below	108	3,4926	0,7298	1,429	,234	-
	6-12 Years between	116	3,5086	0,6414			
	13-21 Between	67	3,4687	0,9156			
	22 Years and Over	143	3,3371	0,7619			
Openness to Change and Innovation	5 Years and below	108	3,8759	0,6077	3,688	,012	1>4
	6-12 Years between	116	3,6931	0,7187			
	13-21 Between	67	3,8000	0,8641			
	22 Years and Over	143	3,5881	0,7044			
Future Orientation	5 Years and below	108	3,7176	0,7832	1,608	,187	-
	6-12 Years between	116	3,5431	0,7649			
	13-21 Between	67	3,5522	0,9380			
	22 Years and Over	143	3,4965	0,8254			
Risk Taking	5 Years and below	108	3,2662	0,8233	3,923	,009	3>4
	6-12 Years between	116	3,2414	0,7342			
	13-21 Between	67	3,4067	0,8255			
	22 Years and Over	143	3,0402	0,7614			
Competitive Strategies	5 Years and below	108	3,3779	0,5024	1,579	,194	-
	6-12 Years between	116	3,2344	0,4601			
	13-21 Between	67	3,3237	0,4963			
	22 Years and Over	143	3,3024	0,5253			
Cost Leadership	5 Years and below	108	3,4213	0,7600	2,349	,072	-
	6-12 Years between	116	3,1408	0,8086			

Table 5.26. Difference Analysis Results by Company Activity Duration

	13-21 Between	67	3,2910	0,7545			
	22 Years and Over	143	3,2832	0,8165			
Differentiation	5 Years and below	108	3,9336	0,7001	,738	,530	-
	6-12 Years between	116	3,8046	0,6668			
	13-21 Between	67	3,8507	0,8882			
	22 Years and Over	143	3,8054	0,7954			
Focus	5 Years and below	108	2,4792	0,9752	0,254	,858	-
	6-12 Years between	116	2,5194	0,9664			
	13-21 Between	67	2,5821	0,9899			
	22 Years and Over	143	2,5769	1,0466			
1= 5 Years and below; 2= Between 6-12 Years; 3= Between 13-21 Years; 4= 22 Years and Over							

Whether there is a difference in organizational innovativeness and competitive strategies according to the positions of the participants in the company was analyzed using One Way Anova, and the results are given in Table 5.27. As can be seen, there was no difference in organizational innovativeness according to the positions of the participants in the company ($p>0.05$); Differences were determined in terms of competitive strategies. According to the results of the Post Hoc test, which was conducted to determine which group caused this difference, it was determined that the difference was between the group with a senior management task (3.4600 ± 0.5287) and the group without a management task (3.2587 ± 0.4942). It was found that participants with a senior management task had a higher mean.

When the sub-dimensions of the scales were examined, there was no difference in terms of proactivity, future orientation and risk-taking dimensions of the organizational innovativeness scale ($p>0.05$), while a difference was found in the dimensions of creativity and openness to change and innovation ($p<0.05$). According to the results of the Post Hoc test, which was conducted to determine which group caused this difference, the difference was caused by the participants who had a senior management task (4.2893 ± 0.5408) and those who did not have a management task (4.0260 ± 0.7736) in terms of creativity. Accordingly, it was determined that the group with a senior management task had a higher average. For the dimension of openness to change and innovation, the difference was determined that caused by between the participants with a senior management task (3.9090 ± 0.6291) and those without a management task (3.6931 ± 0.7160), a lower-level management task (3.677 ± 0.7161) and groups with middle

management duties ($3,6444 \pm 0,7900$). Accordingly, it was found that the group with a senior management task had a higher average.

While there was no difference in terms of cost leadership and focus dimensions of another of the scales, the scale of competitive strategies ($p > 0.05$), a difference was found in terms of differentiation dimension ($p < 0.05$). Post Hoc test was performed to determine which group caused this difference. According to the test result, the difference was caused by the participants with a senior management task (4.0599 ± 0.7009) and the group without a management task (3.7995 ± 0.7467) and a lower-level management task (3.6918 ± 0.7908) determined. According to this, it was found that the group with a senior management position had a higher average.

Table 5.27. Difference Analysis Results by Position in the Firm

	Position	N	Ave.	Std.Dev.	F	p	Post Hoc
Organizational Innovativeness	No manag. role	202	3,6048	0,6041	2,407	,067	-
	Lower level manag.	53	3,5449	0,5875			
	Middle manag.	90	3,5916	0,6202			
	Senior management	89	3,7748	0,5229			
Creativity	No manag. role	202	4,0260	0,7736	3,118	,026	4>1
	Lower level manag.	53	3,9717	0,9578			
	Middle manag.	90	4,0972	0,6794			
	Senior management	89	4,2893	0,5408			
Proactivity	No manag. role	202	3,4297	0,7373	0,118	,949	-
	Lower level manag.	53	3,4226	0,7643			
	Middle manag.	90	3,4400	0,7406			
	Senior management	89	3,4831	0,7965			
Openness to Change and Innovation	No manag. role	202	3,6931	0,7160	2,734	,043	4>1,2,3
	Lower level manag.	53	3,6377	0,7161			
	Middle manag.	90	3,6444	0,7900			
	Senior management	89	3,9090	0,6291			
Future Orientation	No manag. role	202	3,4802	0,8328	2,611	,051	-
	Lower level manag.	53	3,5943	0,7472			
	Middle manag.	90	3,5722	0,7917			
	Senior management	89	3,7697	0,8362			
Risk Taking	No manag. role	202	3,2438	0,7864	1,701	,166	-
	Lower level manag.	53	3,0142	0,8092			
	Middle manag.	90	3,1528	0,8070			

Table 5.27. Difference Analysis Results by Position in the Firm (Continue)

	Senior management	89	3,2921	0,7502			
Competitive Strategies	No manag. role	202	3,2587	0,4942	3,758	,011	4>1
	Lower level manag.	53	3,2465	0,4531			
	Middle manag.	90	3,2965	0,4840			
	Senior management	89	3,4600	0,5287			
Cost Leadership	No manag. role	202	3,2252	0,7753	0,882	,450	-
	Lower level manag.	53	3,2453	0,7943			
	Middle manag.	90	3,3667	0,7878			
	Senior management	89	3,3408	0,8468			
Differentiation	No manag. role	202	3,7995	0,7467	3,467	,016	4>1,2
	Lower level manag.	53	3,6918	0,7908			
	Middle manag.	90	3,8204	0,7722			
	Senior management	89	4,0599	0,7009			
Focus	No manag. role	202	2,4975	1,0324	1,888	,131	-
	Lower level manag.	53	2,5802	0,8615			
	Middle manag.	90	2,4056	0,9245			
	Senior management	89	2,7388	1,0424			
1= No manag. role; 2= Lower level manag; 3= Middle manag; 4= Senior management							

Whether there is a difference in organizational innovation and competitive strategies according to the working time of the participants was analyzed using One Way Anova, and the results are given in Table 5.28. As can be seen, no significant difference was found in terms of organizational innovation and competitive strategies scales and sub-dimensions according to the working time of the participants (employee working period) ($p>0.05$).

Table 5.28. Difference Analysis Results by Employee Working Period

	Employee Working Period	N	Ave.	Std.Dev.	F	p	Post Hoc
Organizational Innovativeness	5 Years and below	226	3,6733	0,5873	1,122	,340	-
	6-10 Years between	97	3,6214	0,5306			
	11-16 Y. between	48	3,5500	0,6990			
	17 Years and above	63	3,5460	0,6134			
Creativity	5 Years and below	226	4,1383	0,7874	1,659	,175	-
	6-10 Years between	97	4,1263	0,5684			
	11-16 Y. between	48	3,9531	0,7643			
	17 Years and above	63	3,9524	0,7955			

Table 5.28. Difference Analysis Results by Employee Working Period (Continue)

Proactivity	5 Years and below	226	3,5133	0,7226	1,452	,227	-
	6-10 Years between	97	3,3794	0,7086			
	11-16 Y. between	48	3,3625	0,8778			
	17 Years and above	63	3,3429	0,8044			
Openness to Change And Innovation	5 Years and below	226	3,7646	0,7072	,686	,561	-
	6-10 Years between	97	3,6959	0,7319			
	11-16 Y. between	48	3,6771	0,7619			
	17 Years and above	63	3,6333	0,7182			
Future Orientation	5 Years and below	226	3,5774	0,8176	,882	,450	-
	6-10 Years between	97	3,5155	0,7921			
	11-16 Y. between	48	3,4896	0,9253			
	17 Years and above	63	3,7063	0,7861			
Risk Taking	5 Years and below	226	3,2279	0,8083	1,132	,336	-
	6-10 Years between	97	3,2861	0,7071			
	11-16 Y. between	48	3,0938	0,8837			
	17 Years and above	63	3,0952	0,7533			
Competitive Strategies	5 Years and below	226	3,2984	0,4891	1,271	,284	-
	6-10 Years between	97	3,2571	0,4773			
	11-16 Y. between	48	3,3047	0,4643			
	17 Years and above	63	3,4117	0,5846			
Cost Leadership	5 Years and below	226	3,2367	0,8250	1,226	,300	-
	6-10 Years between	97	3,2405	0,7245			
	11-16 Y. between	48	3,4097	0,7509			
	17 Years and above	63	3,4021	0,8163			
Differentiation	5 Years and below	226	3,8732	0,7294	,568	,636	-
	6-10 Years between	97	3,8179	0,7821			
	11-16 Y. between	48	3,7257	0,8283			
	17 Years and above	63	3,8704	0,7522			
Focus	5 Years and below	226	2,5288	0,9968	1,170	,321	-
	6-10 Years between	97	2,4407	1,0401			
	11-16 Y. between	48	2,5156	1,0098			
	17 Years and above	63	2,7381	0,9097			
1= 5 Years and below; 2= Between 6-10 Yıl years; 3= Between 11-16 Yıl years; 4= 17 Years and above							

5.17. SUMMARY OF ALL TESTED HYPOTHESES

In directions with the findings obtained, the information showing the acceptance/rejection status of the hypotheses belonging to the study is presented in Table 5.29.

Table 5.29. Hypothesis Rejection/Acceptance Table

	Hypothesis	Reject	Accept
H ₁	Organizational innovativeness has a significant effect on competitive strategies.		+
H _{1a}	Organizational innovativeness has a significant effect on cost leadership strategy.		+
H _{1b}	Organizational innovativeness has a significant effect on differentiation strategy.		+
H _{1c}	Organizational innovativeness has a significant effect on focus strategy	+	
H ₂	Organizational innovativeness- creativity has a significant effect on competitive strategies.		+
H _{2a}	Organizational innovativeness- creativity has a significant effect on cost leadership strategy.	+	
H _{2b}	Organizational innovativeness- creativity has a significant effect on differentiation strategy.		+
H _{2c}	Organizational innovativeness- creativity has a significant effect on focus strategy.		+
H ₃	Organizational innovativeness- proactivity has a significant effect on competitive strategies.		+
H _{3a}	Organizational innovativeness- proactivity has a significant effect on cost leadership strategy.		+
H _{3b}	Organizational innovativeness- proactivity has a significant effect on differentiation strategy.		+
H _{3c}	Organizational innovativeness- proactivity has a significant effect on focus strategy.	+	
H ₄	Organizational innovativeness- openness to change and innovation has a significant effect on competitive strategies.		+
H _{4a}	Organizational innovativeness- openness to change and innovation has a significant effect on cost leadership strategy.		+
H _{4b}	Organizational innovativeness- openness to change and innovation has a significant effect on differentiation strategy.		+
H _{4c}	Organizational innovativeness- openness to change and innovation has a significant effect on focus strategy.	+	
H ₅	Organizational innovativeness- future orientation has a significant effect on competitive strategies.		+
H _{5a}	Organizational innovativeness- future orientation has a significant effect on cost leadership strategy.		+
H _{5b}	Organizational innovativeness- future orientation has a significant effect on differentiation strategy.		+
H _{5c}	Organizational innovativeness- future orientation has a significant effect on focus strategy.	+	
H ₆	Organizational innovativeness- risk taking has a significant effect on competitive strategies.		+
H _{6a}	Organizational innovativeness- risk taking has a significant effect on cost leadership strategy.		+
H _{6b}	Organizational innovativeness- risk taking has a significant effect on differentiation strategy.		+
H _{6c}	Organizational innovativeness- risk taking has a significant effect on focus strategy.	+	

5.18. SUMMARY OF FINDINGS FOR DEMOGRAPHIC CHARACTERISTICS

In the study, the relationship of demographic characteristics with organizational innovation and competitive strategies was also examined and the findings are given in Table 5.30.

Table 5.30. Findings Regarding Analysis Between Organizational Innovativeness and Socio-Demographical Variables

Expressions for Demographic Characteristics		Accept	Reject
1	Organizational innovativeness differs according to the gender of the participants.		+
2	Organizational innovativeness differs according to the marital status of the participants.		+
3	Organizational innovativeness differs according to the education status of the participants.		+
4	Organizational innovativeness differs according to the age of the participants.	+	
5	Organizational innovativeness differs according to the sector of the participants.	+	
6	Organizational innovativeness differs according to the field of activity of the company in which the participants work for.		+
7	Organizational innovativeness differs according to the operating period of the company in which the participants work for.	+	
8	Organizational innovativeness differs according to the operation time (period) of the participants.		+
9	Organizational innovativeness differs according to the positions in their company of the participants.		+
10	OI- creativity differs according to the gender of the participants.		+
11	OI- creativity differs according to the marital status of the participants.		+
12	OI- creativity differs according to the education status of the participants.		+
13	OI- creativity differs according to the age of the participants.	+	
14	OI- creativity differs according to the sector of the participants.	+	
15	OI- creativity differs according to the company where participants work for.	+	
16	OI- creativity differs according to the operating period of the company in which the participants work for.		+
17	OI- creativity differs according to the operation time (period) of the participants.		+
18	OI- creativity differs according to the positions in their company of the participants.	+	
19	OI- proactivity differs according to the gender of the participants.		+
20	OI- proactivity differs according to the marital status of the participants.		+
21	OI- proactivity differs according to the education status of the participants.		+
22	OI- proactivity differs according to the age of the participants.		+
23	OI- proactivity differs according to the sector of the participants.		+
24	OI- proactivity differs according to the company where the participants work for.		+
25	OI- proactivity differs according to the operating period of the company in which the participants work for.		+
26	OI- proactivity differs according to the operation time (period) of the participants.		+
27	OI- proactivity differs according to the positions in their company of the participants.		+
28	OI- openness to change and innovation differs according to the gender of the participants.		+
29	OI- openness to change and innovation differs according to the marital status of the participants.		+
30	OI- openness to change and innovation differs according to the education status of the participants.		+
31	OI- openness to change and innovation differs according to the age of the participants.		+
32	OI- openness to change and innovation differs according to the sector of the participants.		+
33	OI- openness to change and innovation differs according to the company where the participants work for.		+

Table 5.30. Findings Regarding Analysis Between Organizational Innovativeness and Socio-Demographical Variables (Continue)

34	OI- openness to change and innovation differs according to the operating period of the company in which the participants work for.	+	
35	OI- openness to change and innovation differs according to the operation time (period) of the participants.		+
36	OI- openness to change and innovation differs according to the positions in their company of the participants.	+	
37	OI- future orientation differs according to the gender of the participants.		+
38	OI- future orientation differs according to the marital status of the participants.		+
39	OI- future orientation differs according to the education status of the participants.		+
40	OI- future orientation differs according to the age of the participants.		+
41	OI- future orientation differs according to the sector of the participants.		+
42	OI- future orientation differs according to the company where the participants work for.		+
43	OI- future orientation differs according to the operating period of the company in which the participants work for.		+
44	OI- future orientation differs according to the operation time (period) of the participants.		+
45	OI- future orientation differs according to the positions in their company of the participants.		+
46	OI- risk- taking differs according to the gender of the participants.		+
47	OI- risk- taking differs according to the marital status of the participants.		+
48	OI- risk- taking differs according to the education status of the participants.	+	
49	OI- risk- taking differs according to the age of the participants.	+	
50	OI- risk- taking differs according to the sector of the participants.	+	
51	OI- risk- taking differs according to the company where the participants work for.		+
52	OI- risk- taking differs according to the operating period of the company in which the participants work for.	+	
53	OI- risk- taking differs according to the operation time of the participants.		+
54	OI- risk- taking differs according to the positions in their company of the participants.		+

Table 5.31. Findings on Analysis Between Competitive Strategies and Socio-Demographical Variables

Expressions for Demographic Characteristics		Accept	Reject
1	Competitive strategies differ according to the gender of the participants.	+	
2	Competitive strategies differ according to the marital status of the participants.		+
3	Competitive strategies differ according to the education status of the participants.	+	
4	Competitive strategies differ according to the age of the participants.		+
5	Competitive strategies differ according to the sector of the participants.		+
6	Competitive strategies differ according to the company where the participants work for.		+
7	Competitive strategies differ according to the operating period of the company in which the participants work for.		+
8	Competitive strategies differ according to the operation time (period) of the participants.		+

Table 5.31. Findings on Analysis Between Competitive Strategies and Socio-Demographical Variables (Continue)

9	Competitive strategies differ according to the positions in their company of the participants.	+	
10	CS- cost leadership differs according to the gender of the participants.	+	
11	CS- cost leadership differs according to the marital status of the participants.		+
12	CS- cost leadership differs according to the education status of the participants.	+	
13	CS- cost leadership differs according to the age of the participants.		+
14	CS- cost leadership differs according to the sector of the participants.		+
15	CS- cost leadership differs according to the company where the participants work for.	+	
16	CS- cost leadership differs according to the operating period of the company in which the participants work for.		+
17	CS- cost leadership differs according to the operation time of the participants.		+
18	CS- cost leadership differs according to the positions in their company of the participants.		+
19	CS- differentiation differs according to the gender of the participants.		+
20	CS- differentiation differs according to the marital status of the participants.		+
21	CS- differentiation differs according to the education status of the participants.		+
22	CS- differentiation differs according to the age of the participants.		+
23	CS- differentiation differs according to the sector of the participants.	+	
24	CS- differentiation differs according to the company where the participants work for.		+
25	CS- differentiation differs according to the operating period of the company in which the participants work for.		+
26	CS- differentiation differs according to the operation time of the participants.		+
27	CS- differentiation differs according to the positions in their company of the participants.	+	
28	CS- focus differs according to the gender of the participants.		+
29	CS- focus differs according to the marital status of the participants.		+
30	CS- focus differs according to the education status of the participants.		+
31	CS- focus differs according to the age of the participants.		+
32	CS- focus differs according to the sector of the participants.		+
33	CS- focus differs according to the company where the participants work for.		+
34	CS- focus differs according to the operating period of the company in which the participants work for.		+
35	CS-focus differs according to the operation time of the participants.		+
36	CS- focus differs according to the positions in their company of the participants.		+

CHAPTER VI: CONCLUSION AND DISCUSSION

The results obtained based on the findings acquired from the statistical analyzes within the scope of the research were evaluated in 2 sections. The results of the exploratory analyze in the first part and the results on the literature (methodological results) in the second part are discussed separately.

On the other side, this chapter gives also recommendations for implementation and for the literature under the different sub-headings.

6.1 CONCLUSION

The effect of organizational innovativeness on competitive strategies was modelled and a total of 8 main variables were determined (5 independent variables, 3 dependent variables). These main variables were hypothesized and tested in this study. In total, 24 hypotheses were analyzed. In addition, the analysis of demographic characteristics was also included in the study. Because the innovativeness scale is a newly developed scale, it was thought that the findings related to these features should also be examined.

Accordingly, in this study, when the competitive strategy status of the participants was evaluated, it was found to be at a medium level and organizational innovativeness was at a high level. In this case, it can be said that the organizational innovativeness levels of the participants are higher than their competitive strategies. The life sciences sector is a sector where innovation and competition are very intense. It can be said that the result obtained in this way may be related to the examined sector. As a matter of fact, the life sciences sector is a sector that requires R&D intensity and continuous innovation.

When the competitive strategy levels of the participants were evaluated, the answers given to the statement 'we are reducing our production costs' received the highest value. This can be attributed to the desire for cost reduction and competitiveness, which are the main goals of all business organizations. The lowest value was the answers given to the question 'We only focus on a specific geographic region'. The main reason for this can be

attributed to the fact that the production and distribution activities of the life sciences sector appeal to the whole country geographically.

When the organizational innovativeness levels of the participants were evaluated, the answers given to the statement 'The managers in our company expect us to be skilled problem solvers' got the highest value. In today's business world, companies want to see all their employees as leaders. Therefore, almost all types of organizations expect employees to take initiative and become more resourceful in an increasingly complex and competitive business environment. Leadership schools are increasing in the world and there is an increase in applications made to leadership trainings. Also, on this scale, the participants gave the lowest value to the question "Our company likes to take big risks". It can be said that especially the organizations in which the participants take part are careful about risk. It would be more correct to evaluate and interpret this answer mainly in terms of Turkey's social and economic conditions. Because of the perception of trust among Turkish people, it can be said that employees and managers are not willing to take risks. The biggest factor in this is the problem of trust in the country. Actually, this answer was among the most anticipated answers. In addition, it can be said that the life sciences sector, which is the examined sector, is also very effective in this answer.

In the study, a statistically significant, positive and moderate relationship was found between competitive strategies and organizational innovativeness (OI). When the literature is examined in the method part of the study, it is seen that innovativeness has an effect on competitive strategies. However, in this study, the organizational innovativeness scale was developed and the effect of the five sub-dimensions of organizational innovativeness on competitive strategies was examined. In particular, as shown in the hypothesis table, very different findings were reached as a result of the study. According to the results of the correlation analysis conducted to determine the relationship between the sub-dimensions of competitive strategies and organizational innovativeness sub-dimensions in the research, there is a statistically significant difference between the sub-dimensions of competitive strategies, cost leadership, and the sub-dimensions of organizational innovativeness, proactivity, openness to change and innovation, future orientation and risk taking, a significant, positive and low correlation was determined. However, no relationship was found between cost leadership and creativity. As a matter of fact, the question of whether new and low-cost products can be

made with creative ideas comes to mind. However, no statistically significant relationship was found between them. Considering under normal circumstances, there is a possibility of a relationship. This is one of the most striking findings in the study. After finding this finding, a literature review was conducted again. Other information about the finding was also tried to be reached. However, a study examining the relationship between creativity and cost leadership could not be found.

After the relationship analysis in the study, the effect of organizational innovativeness on competitive strategies was examined. According to the research model organizational innovativeness has a positive and significant effect on competitive strategies. In the model, organizational innovativeness explains 17.8% of the total variance. According to these findings, it can be predicted that the increase in the level of organizational innovativeness will lead to an increase in the level of competitive strategies. When considered in terms of sub-dimensions, it has been determined that the creativity dimension has no effect on the cost leadership sub-dimension, but has a significant effect on the differentiation and focus dimensions. As a matter of fact, if commercial organizations want to differentiate in certain areas, they need to develop and support their creative abilities. In addition, while proactivity, openness to change and innovation, future orientation and risk-taking dimensions have no effect on focusing sub-dimensions; It also has a significant effect on differentiation and cost leadership.

Likewise, proactivity, openness to change and innovation, future orientation and risk taking have a positive and significant effect on the cost leadership dimension. It can be said that proactivity, openness to change and innovation, future orientation and increased risk-taking will also increase the cost leadership of organizational innovativeness. Business organizations must carefully examine these four arguments for corporate innovation if they want to become leaders by choosing low-cost strategies. Therefore, being foresighted, developing an orientation accordingly, taking risks and being proactive will be the elements that make businesses stand out.

On the other hand, creativity, proactivity, openness to change and innovation, orientation to the future, risk taking and differentiation have a significant effect and have a positive effect. In other words, the increase in these five dimensions in organizational innovativeness will provide more diversified differentiation.

According to the findings, creativity, one of the sub-dimensions of organizational innovation, has a significant negative effect on the focus dimension. Proactivity, openness to change and innovation, future orientation and risk taking have no effect on focus. Another surprising finding is that there is a negative relationship between creativity and focus. In this case, focusing on a specific product, target audience or region can increase the likelihood of blunting creative talent. In this case, it is foreseen that the commercial organizations that implement the said strategy should take this into account. In this context, businesses should not forget the fine details that they may miss. From the findings, it can be said that an increase in organizational innovativeness and creativity will cause a decrease in focus.

Another remarkable point of the study is the analyses made in terms of demographic characteristics. The independent variables of the study are related to demographic characteristics. For example, creativity may develop according to the organizational culture of the employee. In this respect, it is important to examine demographic characteristics. In this context, 9 main sub-variables (gender, marital status, educational status, age, sector, company service area, company activity period, working time of employees and positions of employees in the company) were discussed while examining demographically.

It was examined whether there is a difference between organizational innovativeness and competitive strategies according to the gender of the participants. In this context, it was determined that the participants' being male or female did not make a statistically significant difference in organizational innovativeness levels, while a statistically significant difference was found in competitive strategies. On the other hand, the average of male participants was higher than the average of female participants. In addition, when the sub-dimensions of the scales were examined, a statistically significant difference was found in the cost leadership sub-dimension of the competitive strategies scale. According to this result, it can be said that the average of cost leadership preference approach of male participants is higher than that of females. On the other hand, it has been observed that there is no statistically significant difference in the levels of organizational innovativeness and competitive strategies whether the participants are married or single.

When evaluated according to the educational status of the participants; While there was no difference in terms of organizational innovativeness, it was seen that there was a

statistical difference according to competitive strategies. According to the findings, the difference is due to the participants at the doctorate and higher education level. The average of the participants with a doctorate or higher education level is lower. According to this result, it can be said that participants with doctoral level education are less competitive. It can be concluded from this situation that educational saturation can reduce the desire for competitiveness. Of course, this will certainly vary by industry. However, such a result was found in the life sciences sector.

On the other hand, when the sub-variables of the scale belonging to organizational innovativeness were analysed according to the educational status of the participants, there was no difference in all dimensions of the organizational innovativeness scale except for the risk-taking dimension, while a statistically significant difference was found in the risk-taking sub-dimension. Likewise, it was seen that this significant difference, which emerged again here, was caused by the participants with post-doctoral education. The participant group with a doctorate or higher education level has a lower average. Likewise, it can be said that participants with doctoral education are more cautious about risk taking. People with higher education may be more knowledgeable in analysing markets, following global markets instantly and predicting the future. In this case, it is predicted that they act more cautiously about risk taking.

Considering the educational status of the competitive strategies scale sub-dimensions, there was no difference in all dimensions except the cost leadership dimension, while a statistically significant difference was found in the cost leadership dimension. It has been determined that this difference is due to the participants with doctoral level education. Participants with a doctorate or higher education level have a lower average than other education levels. In other words, the contribution of the participants with doctoral education to cost leadership was not as expected.

While there was no difference in terms of competitive strategies according to the age of the participants, it was determined that it differed statistically according to organizational innovativeness. It was determined that this difference was caused by the participants aged 25 and under. Accordingly, the average of the participants aged 25 and under is higher. The most important reason for this is that the new generation is truly innovative and is very open to technology and technological developments. Especially in

companies, it is seen that people over a certain age are not very willing and have difficulty in using and adopting technology. Therefore, the results also confirm this finding.

In addition, when the sub-dimensions of the organizational innovativeness scale were examined according to age, there was no difference in all dimensions except creativity and risk-taking, while a statistically significant difference was found in creativity and risk-taking sub-dimensions. This difference was again caused by the participants under the age of 25, and it was seen that the participants under the age of 25 had a higher average. No difference was found in the general and all dimensions of the scale of competitive strategies.

When the situation of the participants is evaluated according to the private sector or the public-local sector, there is no significant difference in the levels of competition strategies. However, a statistically significant difference was found in organizational innovativeness levels. The average of private sector employees is higher than the average of public-local government employees. In addition, when the sub-dimensions of the scales were examined, a statistically significant difference was found in the creativity sub-dimension of the organizational innovativeness scale. For the creativity dimension of organizational innovation, it can be said that the average of private sector employees is higher than the average of public-local government employees. In addition, for the risk-taking sub-dimension, it has been determined that the average of private sector employees is higher than the average of public-local sector employees. In this case, it can be stated that the private sector is more innovative in terms of both creativity and risk taking. As expected, it has been observed that public institutions are not creative and willing to take risks due to their organizational structure. For the differentiation sub-dimension, which is one of the sub-dimensions of competitive strategies, it has been determined that the average of private sector employees is higher than the average of public-local sector.

According to the sub-sectors (pharmaceuticals, biotechnology, cosmetics, medical industry and clean environment technologies) of the participants, there was no difference in the levels of organizational innovation and competition strategies. In fact, this was a very unexpected result.

When the sub-variables of the organizational innovativeness scale were examined, there was no difference in all dimensions of the organizational innovativeness scale except for the creativity dimension, while a statistically significant difference was found

in the creativity dimension. It was determined that this difference was caused by the participants working in the field of medicine and biotechnology. Accordingly, the average of the participants working in the pharmaceutical and biotechnology sub-sector is higher.

When the scale of competitive strategies is evaluated according to the sub-sectors of business organizations, there is no difference in all dimensions except the cost leadership dimension, while a difference is found in the cost leadership dimension. It has been determined that this difference is due to the participants working in the pharmaceutical and biotechnology sub-sectors and the clean environment technologies field of activity. According to the result, participants working in the pharmaceutical and biotechnology sub-sectors have a lower average.

When it is evaluated whether there is a difference according to the activity periods of the business organizations of the participants, while there is no difference in terms of competition strategies and all sub-dimensions in general, a difference has been determined in terms of organizational innovativeness. Accordingly, it has been determined that this difference stems from commercial organizations operating for less than 5 years. This means that the majority of companies with less than 5 years of working time can be said to have a more innovative approach.

When the sub-dimensions of the scales related to organizational innovativeness were examined, no difference was found in terms of creativity, proactivity and future orientation, but a difference was found in the dimensions of openness to change and innovation and risk taking. This difference, which emerged in terms of openness to change and innovation sub-variable, is due to employees with less than 5 years of service. The averages of commercial establishments with less than 5 years of activity are higher. It has been determined that the risk-taking dimension originates from businesses operating for 22 years or more. Accordingly, commercial organizations operating for 22 years or more have a lower average.

When it was evaluated whether there was a difference in organizational innovativeness and competitive strategies according to the positions of the participants in business organizations, there was no difference in terms of organizational innovativeness, but a difference was found in terms of competitive strategies. It was determined that this difference was caused by the participants between the group with a senior management task and the group without a management task. Accordingly, participants with senior

management positions have a higher average level of competitive strategies. In other words, it can be said that participants with a senior management group are more competitive.

When the sub-variables of organizational innovativeness were analyzed according to the positions of the participants, there was no difference in terms of proactivity, future orientation and risk-taking dimensions of the organizational innovativeness scale, while a difference was found in the dimensions of creativity and openness to change and innovation. It has been determined that this difference is caused by the participants who have a senior management task in terms of creativity and the participants who do not have a management task. Accordingly, the averages of participants with senior management roles are higher. It was found that the group with senior management positions had a higher average in openness to change and openness to innovation.

When the sub-variables of the competitive strategies scale, which is another of the scales, are evaluated according to the positions of the participants, there is no difference in terms of cost leadership and focus sub-variables, while there is a difference in the dimension of differentiation. It has been determined that this difference stems from the participants in the senior management positions. Accordingly, the group with a senior management position has a higher average.

When it was evaluated whether there was a difference in organizational innovativeness and competitive strategies according to the working time of the participants, no difference was found. In addition, no difference was determined for the sub-variables of both scales according to the working time of the participants.

The concepts of innovation, organizational innovativeness, competition and competitiveness have been researched with theoretical and applied studies, and an important literature has emerged as a result of these studies. However, this study, which examines the relationships in terms of organizational innovativeness, competitive strategies and the life sciences sector, has been a unique study in terms of the related discipline. In this study, which examines the effect of organizational innovativeness on competitive strategies, 6 main hypotheses and 24 hypotheses in total were tested. In this context, while 18 hypotheses were accepted, 6 hypotheses were rejected.

It was observed that the creativity sub-variable of organizational innovativeness did not differ with gender, marital status and education level. However, creativity differs

according to age, the employment of employees in the private and public sectors, and the fields of activity of business organizations. This shows that this variable may be related to ability to some extent. However, creativity is a concept that can be developed within the appropriate environment and conditions. In the concept of creativity, there is also no difference in terms of the activity period of the business organization and the working period of the employees. In the creativity dimension, it has been observed that the employees differ in their positions in business organizations. Accordingly, it can be said that the employee can be more creative when he or she feels more comfortable.

One of the most important approaches in today's business world is the proactive approach. The business world is now too competitive to accept the waste of time. In this context, proactive approaches are preferred. All companies are trying to develop their business processes accordingly and to train their employees in this regard. However, it was observed that proactivity did not change for any of the demographic characteristics discussed in this study. Such a result in a highly innovative industry such as the life sciences sector raises many research questions.

It was determined that organizational innovativeness, openness to change and innovation variable differed only for the duration of the firm's activity and the positions of the employees; On the other hand, it was observed that there was no difference for the future orientation sub-variable according to any demographic characteristics. It is foreseen as an important research topic how this situation will result in other different manufacturing or service sectors.

For the organizational innovativeness risk-taking sub-variable, it has been observed that it may differ for four different demographic characteristics (educational status, age, sector-public-private and duration of activity of the firm). It was observed that the risk-taking dimension did not differ for other demographic characteristics.

Looking at the relationships between the main variable of competitive strategies and demographic characteristics; it has been seen that gender, education level and employees show more competitive characteristics according to their positions in the company. Other demographic characteristics did not change. The question of why other demographic characteristics do not change is foreseen as issues that need to be examined.

On the other hand, when the cost leadership dimension of competitive strategies is examined, it is seen that there are differences in three different characteristics. These;

gender, educational status and demographic characteristics of the employees according to the company they work for.

When the competitive strategies were analysed within the framework of the differentiation sub-variable, it was seen that there could be differences in two demographic characteristics. These differences are according to the sector in which the employees work (public-private) and the positions of the employees in the company. In this context, it is envisaged that the problematic of what factors might be effective for employees with lower management duties to have a more competitive approach will be studied as a research topic.

Finally, when the focus sub-variable was examined, it was seen that there was no difference in any of the demographic characteristics. It is foreseen that this result should be among the scientific research topics that need to be examined.

To summarize, in this study, which examines the relationship between organizational innovativeness and competitive strategies applied to the life sciences sector, it is expected that different results will contribute to the literature with new variables that can be added to the model revealed within the scope of the subject.

6.2 DISCUSSION

In the discussion section of this thesis, suggestions for both researchers and practitioners are presented. In this context, organizational innovativeness is discussed with its five sub-dimensions (creativity, proactivity, openness to change and innovation, future-oriented and risk-taking). Competitive strategies are analyzed as cost leadership, focus and differentiation. In the study, quite striking and different findings were obtained. First of all, organizational innovativeness scale was developed. In this context, all users, organizations and businesses can use this scale to learn what they need to do to improve their innovation capabilities in an organization by examining them here.

In today's conditions, all environmental variables force businesses and sectors to be more innovative and competitive conditions more and more. The life sciences sector, on the other hand, is a sector that will never lose or even increase its importance in social, economic and all aspects. As a matter of fact, the pandemic process experienced at the global level in recent years has revealed this situation even more clearly. Along with the life sciences sectors, there have been radical changes in the working conditions and

preferences of people in almost all countries. The business world has experienced how working and production conditions can change in an instant. This shows that the business world will have to be more innovative and proactive than ever before in the face of ever-increasing competition. For this reason, all sectors have experienced once again how essential and important an innovative approach is. Therefore, it is expected that all sectors will be more exposed to these five sub-dimensions of organizational innovativeness. From this point of view, it is anticipated that examining all the variables discussed in this study for other sectors will provide an exemplary research ground for other sector players.

Based on this thesis, it will be very useful to carry out studies in which causal relationships can be established in a different and clearer way. For this reason, it is recommended to conduct studies in which different analysis techniques are preferred by using intervening variables in order to better establish causality between concepts.

In the literature, there are studies conducted in different fields to measure the concepts of organizational innovativeness and competitive strategies and models developed based on these studies. For this reason, it is expected to make significant contributions to the literature with a study to be carried out by adding different variables to the research model. Similarly, the research was applied only to business organizations operating in the life sciences sector. It is suggested that future scientific research should be carried out by including commercial organizations operating in different sectors.

It has been observed from the study that the companies are focused on cost reduction in general and they do not focus on a certain region in terms of the sector. It can be attributed to the desire for cost reduction and competitiveness, which are the main goals of all commercial organizations. In fact, due to the difficulties experienced during the data collection phase of the study, the companies went to an extra cost reduction target, even the work stopped in some sectors. In this respect, it is of great importance to apply this study to other sectors in a specific and timely manner and to evaluate the results. The main reason for not focusing on a specific region can be attributed to the fact that the production and distribution activities of the life sciences sector geographically appeal to the whole country. Of course, this situation may vary from sector to sector, from product to product. For this reason, it would be beneficial to examine this data carefully in other sectors where this study will be conducted.

One of the most striking results obtained in the study was that there was no relationship between cost leadership and creativity. As a matter of fact, the question of whether new and low-cost products can be made with creative ideas comes to mind. However, no statistically significant relationship was found between them. Considering under normal circumstances, there is a possibility of a relationship. After finding this finding, a literature review was conducted again. Other information about the finding was also tried to be reached. However, a study examining the relationship between creativity and cost leadership could not be found. In this respect, it will be important to consider this finding in detail and to evaluate all the conditions that will affect this result.

In the study, it can be said that proactivity, openness to change and innovation, future orientation and increased risk taking will also increase the cost leadership of organizational innovation. Business organizations must carefully examine these four arguments for corporate innovation if they want to become leaders by choosing low-cost strategies.

According to the sub-sectors (pharmaceuticals, biotechnology, cosmetics, medical industry and clean environment technologies) of the participants, there was no difference in the levels of organizational innovation and competition strategies. It was thought that this result might be due to the fact that it is the life sciences sector. However, it would be useful to examine how this result will come out in sectors that are different from each other.

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APPENDIX

The research questionnaire is given in Appendix A.

APPENDIX A

QUESTIONNAIRE FORM

THE IMPACT OF ORGANIZATIONAL INNOVATIVENESS ON COMPETITIVE STRATEGIES AN EMPERICAL STUDY ON LIFE SCIENCE INDUSTRY

Dear Sir/Madam,

This survey study was prepared to provide data for a doctoral thesis study conducted to examine the effect of organizational innovation on competitive strategies. It is of great importance that you indicate your level of agreement with the statements in the questionnaire form in order to achieve the purpose of the research. The data obtained in this research will be used purely for scientific research purposes. Upon your request, the results of the research will be shared with you, the esteemed participants. There are no right or wrong answers to the questions. It is important that you answer with your heart, and the success of the research depends on your sincere and sincere answers to the questions. **Within the scope of the survey questions, there is no question that will reveal your open identity. In terms of research, your answers are important, not your identity.** Thank you very much for your contribution and interest in the study by answering this questionnaire.

**PLEASE INDICATE YOUR GRADE OF PARTICIPATION BETWEEN 1 TO 5
GRADES IN THE FOLLOWING STATEMENTS.**

1-Strongly Disagree, 2-Disagree, 3-Undecided, 4-Agree, 5-Strongly Agree

	In this section, you are asked various questions about you and your job. Please choose the option that best describes your situation.	STRONGLY DISAGREE	DISAGREE	UNDECIDED	AGREE	STRONGLY AGREE
1	Creativity is encouraged in our company.	1	2	3	4	5
2	In our company, managers expect us to be skilled problem solvers.	1	2	3	4	5
3	We are constantly trying to develop and offer new or improved services in our company.	1	2	3	4	5
4	Our ability to work creatively in our company is respected by leaders.	1	2	3	4	5
5	We are encouraged to use original approaches when dealing with problems in our company.	1	2	3	4	5
6	Compared to our competitors, our products are revolutionary in the market.	1	2	3	4	5
7	Our company's latest new product promotion required a creative and new form of advertising and promotion.	1	2	3	4	5
8	Over the past five years, our company has developed many new management approaches.	1	2	3	4	5
9	In our company, when we are unable to solve a problem using traditional methods, we are encouraged to think and act in new ways.	1	2	3	4	5
10	Our company is open and sensitive to changes.	1	2	3	4	5
11	Our company is often at the cutting edge of technology in introducing new products and services.	1	2	3	4	5
12	Compared to our competitors, our company is rapidly changing its production methods.	1	2	3	4	5
13	Our company is careful to confront the experiences of other organizations.	1	2	3	4	5
14	Our company is sensitive to adopting the demands of customers/users.	1	2	3	4	5
15	Our company is careful to expand its competencies with new ones.	1	2	3	4	5
16	Our company encourages its employees to develop innovative skills.	1	2	3	4	5
17	Our company attaches importance to establishing cooperative relations with other organizations.	1	2	3	4	5
18	Our company is careful about testing new ways of working.	1	2	3	4	5
19	Our company creates a realistic set of future goals for itself.	1	2	3	4	5
20	Our company effectively ensures that all managers and employees share the same vision of the future.	1	2	3	4	5
21	Our company conveys a clear sense of future direction to employees.	1	2	3	4	5
22	All departments and employees in our company have a realistic vision for the future.	1	2	3	4	5
23	Our future investments in new machinery and equipment in our company are significant compared to our annual turnover.	1	2	3	4	5
24	Our future investments in new production methods are significant compared to our annual turnover.	1	2	3	4	5

25	Our company believes that higher returns are worth taking higher risks.	1	2	3	4	5
26	Our company encourages innovative strategies, knowing well that some will fail.	1	2	3	4	5
27	Our company likes to take big risks.	1	2	3	4	5
28	New products and services in our company often present us with new competitors.	1	2	3	4	5
29	Our company's key executives are willing to take risks to seize and explore growth opportunities "by chance".	1	2	3	4	5
30	We are ready to try new ways of doing things in our company and look for unusual, original solutions.	1	2	3	4	5
31	We are constantly looking for new opportunities for our company.	1	2	3	4	5
32	In our company, we take the initiative to shape the environment for us.	1	2	3	4	5
33	Our company is usually first in the market for new product and service promotions.	1	2	3	4	5
34	We often take the initiative by introducing new administrative techniques.	1	2	3	4	5
35	Our new products and services are often perceived by customers as very new.	1	2	3	4	5
36	Compared to our competitors, our company has been faster in bringing new products or services to market in the last five years.	1	2	3	4	5
37	The nature of the production process in our company is new compared to our main competitors.	1	2	3	4	5
38	Executive management in our company is very careful in adopting innovative ideas.	1	2	3	4	5
39	In our company, senior managers constantly seek unusual, new solutions to problems, using "idea guys".	1	2	3	4	5
40	We reduce our purchasing costs.	1	2	3	4	5
41	We reduce our production costs.	1	2	3	4	5
42	We reduce our marketing costs.	1	2	3	4	5
43	We reduce our financing costs.	1	2	3	4	5
44	We reduce our personnel costs.	1	2	3	4	5
45	We reduce our maintenance costs.	1	2	3	4	5
46	We try to make a difference in our products.	1	2	3	4	5
47	We try to make a difference in our services.	1	2	3	4	5
48	We try to make a difference in our designs.	1	2	3	4	5
49	We are trying to make a difference in our distribution channels.	1	2	3	4	5
50	We try to make a difference in our delivery speed.	1	2	3	4	5
51	We are trying to make a difference by branding.	1	2	3	4	5
52	We only focus on a particular product.	1	2	3	4	5
53	We only focus on a certain product group.	1	2	3	4	5
54	We only focus on a certain group of customers.	1	2	3	4	5
55	We only focus on a certain area.	1	2	3	4	5

Fill in the demographic information below:

SECTION 2: Demographic Information of Participants					
1. Gender	☐ Female	☐ Male			
2. Your Marital Status	☐ Married	☐ Single	☐ Divorced		
3. Your Age	☐ 25 Age under	☐ 26-35	☐ 36-45	☐ 46 Above	
4. Your Working Sector	☐ Academic	☐ Private Sector	☐ Administrative		
5. Educational Status	☐ High School	☐ Undergraduate	☐ Licence	☐ Master's	☐ Doctorate
6. Your Working Company					
7. Operation Period of The Company	☐ 5 Years under	☐ 6-12 Years	☐ 13-21 Years	☐ 22 Years above	
8. Your Position of The Company	☐ Senior Man.	☐ Middle L. Man.	☐ Low Level Man.	☐ No Man. Role	
9. How Many Years Have You Worked	☐ 5 Years under	☐ 6-10 Years	☐ 11-16 Years	☐ 21 Years above	

